

**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK**

IN RE:

SSA BONDS ANTITRUST LITIGATION

This Document Relates To All Actions

1:16-cv-03711-ER

**SECOND CONSOLIDATED
AMENDED CLASS ACTION
COMPLAINT**

JURY TRIAL DEMANDED

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Plaintiffs Alaska Department of Revenue, Treasury Division (“Alaska Department of Revenue”), Alaska Permanent Fund Corporation, and Iron Workers Pension Plan of Western Pennsylvania (“Iron Workers”), individually and on behalf of all others similarly situated, bring this class action and allege as follows:

NATURE OF THE ACTION

1. This case concerns a brazen conspiracy by Defendants to fix prices and restrain competition in the market for U.S. dollar-denominated (“USD”) supranational, sovereign, and agency bonds (“SSA bonds”).

2. SSA bonds are debt securities issued by governmental and quasi-governmental entities, such as the World Bank and the European Investment Bank, for the purpose of funding a range of economic and public policy mandates. SSA bonds are generally regarded as secure investments by investors worldwide, because they often enjoy special legal status, and their credit-worthiness is often pegged to sovereign, regional, or international entities. USD SSA bonds, which are the focus of this case, are principally directed at the U.S. market.

3. Defendants in this case are (i) several banks that operated as primary dealers in the USD SSA bond market, and (ii) individuals with responsibility for the USD SSA trading business at each of their respective banks.

4. As competitors in the market for USD SSA bonds, Defendants were expected to compete vigorously for the business of their investor clients. Free market competition is, and has long been, the fundamental economic policy of the United States. As the Supreme Court has explained, this policy is enshrined in the Sherman Act, which makes it *per se* illegal for competitors (like Defendants here) to conspire and coordinate with each other to limit

competition regarding price and terms of sale.¹ In financial markets, competition among dealers drives better terms and prices for investors—just as competition among suppliers drives better product quality and prices throughout the economy. The Supreme Court has described collusion among competitors of the type that occurred in this case as “the supreme evil of antitrust.”²

5. Rare is an antitrust case like this one, where a large volume of “smoking gun” evidence exists at the pleading stage. Cooperation materials produced by two settling Defendants,³ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

6. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹ *See N. Pac. Ry. Co. v. U.S.*, 356 U.S. 1, 4 (1958) (“The Sherman Act was designed to be a comprehensive charter of economic liberty aimed at preserving free and unfettered competition as the rule of trade. It rests on the premise that the unrestrained interaction of competitive forces will yield the best allocation of our economic resources, the lowest prices, the highest quality and the greatest material progress, while at the same time providing an environment conducive to the preservation of our democratic political and social institutions.”).

² *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 408 (2004).

³ The claims against Bank of America and Deutsche Bank are subject to settlement agreements, but these parties are still named herein because the settlements have not yet been finally approved, and thus these two Defendants have thus not yet been dismissed from the action. The claims against Hiren Gudka have also been stayed by the Court.

7.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

8.

[REDACTED]

[REDACTED] Far from it. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

9.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Many price-fixing cartels involve a handful of illicit meetings or communications. [REDACTED]

[REDACTED]

10. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁴

11. In addition to the extensive use of these chatrooms, Defendants also conspired through other means, such as emails. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁴ The use of these types of chatrooms, which facilitated traders' ability to talk to their counterparts at other banks, was rampant at these banks during the period of the conspiracy. Only recently, and far too late for the investor class here, have the banks taken steps to limit or prohibit their use.

[REDACTED] These traders did virtually everything with each other except the one thing they were obligated to do: compete.

12. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

13. Defendants' clients, of course, did not know that Defendants had secretly agreed not to compete. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

14. Defendants' overarching objective was to ensure that the cartel members would transact with their investor clients at prices that were more favorable for the conspiring dealer—and thus worse for the customer—than could have been achieved in the absence of collusion. In addition to refraining from competing with each other, Defendants actively helped each other to subvert competition so they could execute USD SSA bond trades on financial terms that were more favorable for the conspirators than they would have been in a competitive market.

15. Defendants used a variety of techniques, which they honed over time, to accomplish their shared objective. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

16. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

17. [REDACTED]

[REDACTED]

[REDACTED] Investors are careful about sharing such information with anyone and often take steps to prevent even a single dealer from knowing their inventory and order flow, because dealers can exploit such information to supply investors with less attractive terms. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

18. Defendants collaborated and shared information to such a degree that they effectively ceased being separate actors in the USD SSA bond market and instead functioned as a single, unitary “super-desk.” By effectively functioning as a single trading desk, rather than as many competing trading desks, they severely diminished the amount of competition in the market. This elimination of competition had the predictable result that Defendants’ customers

were worse off than they would have been absent the conspiracy on virtually every trade. That was, of course, the conspiracy's whole point.

19. Although they exhibited no qualms about their collusion, Defendants knew it was illegal, so they took pains to keep it secret. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

20. In December 2015, it was reported that the United States Department of Justice ("DOJ") launched its investigation of certain Defendants after it was finally tipped off to the collusion. Most of the Individual Defendants have lost their jobs as a result of their wrongdoing in the conspiracy. The DOJ investigation will likely lead to significant fines and potentially to other penalties, based at least in part on the impact Defendants' cartel had on U.S. commerce, which was extensive.

21. The DOJ investigation will not, however, compensate the investor victims of Defendants' scheme for the financial harm they suffered over the course of many years. These victims include the many investors who comprise the proposed class of Plaintiffs in this case (the "Class"). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

22. As a result of Defendants' utter abandonment of competition, and their extensive efforts to harm their customers, every USD SSA bond transaction in which Class members engaged with Defendants was impacted by the conspiracy. It is well known from numerous academic studies, discussed below, that a reduction in competition among dealers harms investors who purchase the financial product for which competition was reduced. Here, the application of this well-accepted phenomenon to the USD SSA bond market is confirmed by numerous economic analyses set forth in Section IX below.

23. Regression models are common and well-accepted econometric tools used to detect the impact of a price-fixing conspiracy. Such models use inputs that the academic literature has found to legitimately be related to price movements—such as movements in related instruments, or changes in the time to maturity for a given bond. Here, (1) such a regression model was created that then added another potential variable—one to account for the alleged full presence of a conspiracy between January 2009 and December 2015, but a weakened or non-existent one before 2009 and after 2015. Statistical analyses confirm that across multiple data sets, the inclusion of this additional variable has a statistically significant impact on the model's accuracy. [REDACTED]

[REDACTED]

[REDACTED]

24. To approach the issue from another angle, another regression model was created, by another expert working independently. Here, the regression did *not* include a variable expressly accounting for the presence in the conspiracy. Rather, the conspiracy's impact could be observed by the fact that (2) this expert's model did very well at predicting real-world spreads before 2009 and after the DOJ's investigation, but did markedly worse during the intervening core conspiracy years. Similarly, this expert's regression (3) also did very well at predicting real-world yields during the before and after periods, but again did comparatively poorly, to a statistically significant degree, during the core conspiracy period. And (4) a regression also performed worse at explaining the real-world levels of volatility in yields during the core conspiracy period than the same model did before and after. All these studies show that during the core conspiracy period—but *only* during the core conspiracy period—there was something impacting the market. That was, of course, the conspiracy whose presence is confirmed by all the evidence herein.

25. Yet another economist similarly created yet another regression model in an effort to predict real-world spreads. Plaintiffs here used a model that uses inputs such as the prior day's spread and the current level of volatility in the model. Yet again (5) this model performed comparatively poorly at predicting yields during the core conspiracy. This again shows the market was being made artificial, to a measurable degree, throughout the conspiracy period,

26. The data also show that (6) spreads for USD SSA bonds were consistently higher than they were before or after that core conspiracy period. This is true (7) even after using various "controls" to account for market-wide changes during the same time period. Further, (8) bid-ask spreads were too stable during the core period, consistent with a conspiracy keeping

spreads high regardless of what was occurring in the wider economy, while (9) the actual yields were too varied, consistent with yields bouncing around as the conspiracy pushed yields too low (prices too high) when Defendants were selling and yields too high (prices too low) when Defendants were buying. Finally, (10) the yields of related bonds (*e.g.*, those from the same issuer) are noticeably *less* correlated during the core conspiracy period than outside the period. All of this data showing spreads and yields behaving differently during the conspiracy period confirms that the removal of competition impacted prices paid by all Plaintiffs, [REDACTED]

27. This class action now seeks to recover the monetary damages suffered by those U.S. investors who traded USD SSA bonds with Defendants during the Class Period (defined below).

JURISDICTION AND VENUE

28. This Court has subject matter jurisdiction over this action pursuant to Sections 4 and 16 of the Clayton Act (15 U.S.C. §§ 15(a) and 26), and pursuant to 28 U.S.C. §§ 1331 and 1337(a). Jurisdiction is also had under 28 U.S.C. § 1332, because the amount in controversy for the Class exceeds \$5,000,000, and there are members of the Class who are citizens of a different state than Defendants.

29. Venue is proper in this District pursuant to 15 U.S.C. §§ 15(a) and 22, as well as pursuant to 28 U.S.C. § 1391(b), (c), and (d), because during the Class Period all Defendants resided, transacted business, were found, or had agents in this District; a substantial part of the events or omissions giving rise to these claims occurred in this District; and a substantial portion of the affected interstate trade and commerce discussed herein was carried out in this District.

30. This Court has personal jurisdiction over various corporate Defendants because those Defendants, as set forth below, were formed in or have their principal places of business in

New York State. The Court also has personal jurisdiction over various other corporate Defendants, pursuant to the nationwide contacts test provided for in 15 U.S.C. § 22, because those Defendants, as set forth below, were formed in or have their principal places of business in the United States.

31. In addition, as detailed below, this Court has personal jurisdiction over Defendants because each Defendant transacted business in and throughout the United States, including in this District; each Defendant had substantial contacts with the United States, including in this District; each Defendant committed overt acts in furtherance of Defendants' conspiracy in the United States; each Defendant is an agent of the other Defendants; each Defendant continuously and deliberately exploited the U.S. market for USD SSA bonds and U.S. investors; and Defendants' conspiracy was directed at, and had the intended effect of, causing injury to persons residing in, located in, or doing business throughout the United States, including in this District.

32. Defendants' conspiracy was directed at and repeatedly targeted U.S. investors throughout the Class Period, including in this District. USD SSA bonds, some categories of which are referred to colloquially as "Yankee" bonds, are primarily marketed and sold to U.S. investors, including pension funds, asset managers, insurance companies, university endowments, and hedge funds. Because the United States is the primary market for USD SSA bonds, any conspiracy not to compete in the pricing of USD SSA bonds would inherently be targeted at the United States.

33. Furthermore, essential steps in the conspiracy occurred in the United States and involved transactions with U.S. investors. Thus, the scheme inherently involved trade or commerce taking place in the United States, with U.S. investors. The Defendants knew that the

brunt of the harm caused by their scheme would be felt by investors in the United States. To the extent that the conspiracy may also involve commerce with foreign entities, it remains the case that this scheme had a direct, substantial, and reasonably foreseeable effect on commerce in the United States.

34. Defendants' activities, and those of their co-conspirators, were within the flow of, were intended to, and did have a substantial effect on interstate commerce.

35. The Court also has jurisdiction over Defendants pursuant to New York's C.P.L.R. § 302, because Defendants are present and transact business in New York State; each Defendant had substantial contacts with New York State; each Defendant committed overt acts in furtherance of Defendants' conspiracy in New York State; each Defendant is an agent of the other Defendants; and Defendants' conspiracy was directed at, and had the intended effect of, causing injury to persons residing in, located in, or doing business in New York State.

PARTIES

A. Plaintiffs

36. *Alaska Permanent Fund Corporation.* Plaintiff Alaska Permanent Fund Corporation is a quasi-independent state entity tasked with investing and managing the assets of the Alaska Permanent Fund. During the Class Period, Alaska Permanent Fund Corporation transacted in over one billion dollars' worth of USD SSA bonds, purchasing bonds from and selling bonds to one or more of the Dealer Defendants, including Bank of America, Barclays, BNP Paribas, Citi, Credit Suisse, Deutsche Bank, HSBC and RBC. Throughout the Class Period, Alaska Permanent Fund Corporation entered into over seventy-five different purchase and sale transactions with these Dealer Defendants for a total notional value of over \$695 million, including without limitation bonds from the following major issuers: Kreditanstalt für Wiederaufbau, Province of Ontario, International Bank for Reconstruction & Development,

European Investment Bank, Network Rail Infrastructure, Inter-American Development Bank, Kommunalbanken, Canada Government International, Japan Finance Corporation, and Caisse d'Amortissement de la Dette Sociale, among others.

37. Alaska Permanent Fund Corporation's decisions to buy and sell USD SSA bonds were made in the United States, after placing inquiries with U.S.-based salespeople working at the Dealer Defendants, who then passed the inquiry to the Dealer Defendants' London-based traders for a price. The U.S.-based salespeople then received the price and gave it to Alaska Permanent Fund Corporation's domestic investment manager in the United States. Finally, the purchase or sale transaction was executed in the United States, and either the USD SSA bond or the sale proceeds were delivered to Alaska Permanent Fund Corporation in the United States. The Dealer Defendants' London desks knew they were pricing a trade for a U.S.-based investor and that the price would be conveyed back to the U.S.-based investor and result in a transaction executed in the United States, as they intended. As a result of the conspiracy set forth herein, including because of acts undertaken by the Individual Defendants, Alaska Permanent Fund Corporation's transactions with the Dealer Defendants were priced at artificial levels, causing harm to Alaska Permanent Fund Corporation in the United States.

38. ***Alaska Department of Revenue.*** Plaintiff Alaska Department of Revenue is the bank and trust center for the State of Alaska. The Alaska Department of Revenue provides cash management, investment and portfolio management, and debt management services for the State's General Fund, the Constitutional Budget Reserve Fund, various retirement funds, and other funds and trusts. The Alaska Department of Revenue staffs the Alaska Retirement Management Board, which serves as the trustee of the assets of Alaska's state retirement systems and deferred compensation program for state employees, including Alaska's Deferred

Compensation, Supplemental Benefit System, Defined Contribution-PERS and Defined Contribution-TRS plans, the State of Alaska Supplemental Annuity Plan, and the Alaska retiree health care trusts. During the Class Period, Alaska Department of Revenue transacted in over one billion dollars' worth of USD SSA bonds, purchasing bonds from and selling bonds to one or more of the Dealer Defendants, including Bank of America, Barclays, BNP Paribas, Citi, Credit Suisse, Deutsche Bank, HSBC, RBC, and TD Bank. Throughout the Class Period, Alaska Department of Revenue entered into over two hundred and twenty-five purchase and sale transactions with these Dealer Defendants for a total notional value of nearly \$1.3 billion, including without limitation bonds from the following major issuers: International Bank for Reconstruction & Development, Societe de Financement de l'Economie Francaise, European Investment Bank, Kreditanstalt für Wiederaufbau, Inter-American Development Bank, Province of Manitoba, Government of Italy, Province of Ontario, Japan Finance Corporation, Eksportfinans ASA, and Government of Canada, among others..

39. Alaska Department of Revenue's decisions to buy and sell USD SSA bonds were made in the United States, after placing inquiries with U.S.-based salespeople working at the Dealer Defendants, who then passed the inquiry to the Dealer Defendants' London-based traders for a price. The U.S.-based salespeople then received the price and gave it to Alaska Department of Revenue's domestic investment manager in the United States. Finally, the purchase or sale transaction was executed in the United States, and either the USD SSA bond or the sale proceeds were delivered to Alaska Department of Revenue in the United States. The Dealer Defendants' London desks knew they were pricing a trade for a U.S.-based investor and that the price would be conveyed back to the U.S.-based investor and result in a transaction executed in the United States, as they intended. As a result of the conspiracy set forth herein, including because of acts

undertaken by the Individual Defendants, Alaska Department of Revenue's transactions with the Dealer Defendants were priced at artificial levels, causing harm to Alaska Department of Revenue in the United States.

40. ***Iron Workers.*** Plaintiff Iron Workers is a multi-employer defined benefit pension plan headquartered in Pittsburgh, Pennsylvania. During the Class Period, Iron Workers transacted in USD SSA bonds, purchasing bonds from and selling bonds to one or more of the Dealer Defendants, including Bank of America, Barclays, Credit Suisse, Nomura, RBC, and TD Bank. Iron Workers' transactions in USD SSA bonds with Dealer Defendants included without limitation bonds from the following major issuers: Province of Quebec, Province of Ontario, International Finance Corporation, and Kreditanstalt für Wiederaufbau, among others.

41. Iron Workers' decisions to buy and sell USD SSA bonds were made in the United States, after placing inquiries with U.S.-based salespeople working at the Dealer Defendants, who then passed the inquiry to the Dealer Defendants' London-based traders for a price. The U.S.-based salespeople then received the price and gave it to Iron Workers' domestic investment manager in the United States. Finally, the purchase or sale transaction was executed in the United States, and either the USD SSA bond or the sale proceeds were delivered to Iron Workers in the United States. The Dealer Defendants' London desks knew they were pricing a trade for a U.S.-based investor and that the price would be conveyed back to the U.S.-based investor and result in a transaction executed in the United States, as they intended. As a result of the conspiracy set forth herein, including because of acts undertaken by the Individual Defendants, Iron Workers' transactions with the Dealer Defendants were priced at artificial levels, causing harm to Iron Workers in the United States.

B. Defendants

42. Whenever reference is made to any act, deed, or transaction of any entity, the allegation means that the entity engaged in the act, deed, or transaction by or through its officers, directors, agents, employees, or representatives while they were actively engaged in the management, direction, control, or transaction of the entity's business or affairs.

43. Various other entities, persons, firms, and corporations, which are unknown and not named as Defendants, have participated as co-conspirators with Defendants and have performed acts and/or made statements in furtherance of the conspiracy. Defendants are jointly and severally liable for the acts of their co-conspirators whether named or not named as Defendants in this Complaint.

1. Dealer Defendants

44. **Bank of America.** Defendant Bank of America, N.A. ("BANA") is a federally chartered national banking association with its principal place of business in Charlotte, North Carolina. BANA is an indirect, wholly owned subsidiary of Bank of America Corporation ("BAC"), which is a Delaware corporation with its principal place of business in Charlotte, North Carolina. According to U.K. Financial Conduct Authority ("FCA") records,⁵ colluding SSA bond traders Amandeep Singh Manku and Hiren Gudka were registered as advisers to perform controlled functions or otherwise act on BANA's behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, BANA (acting at least through Manku, and Gudka, but likely many additional employees) directed its collusive USD SSA bond

⁵ The FCA uses codes to designate various functions that individuals may perform in the financial industry, most of which relate to the carrying on of regulated activities by a firm. For instance, CF 30 ("Customer Function") means that the registered individual may, among other things, advise customers on various investments. The codes and their respective meanings can be found on the FCA's website, <https://www.fca.org.uk/>.

trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. Manku and Gudka are under investigation by the DOJ. BANA purposely transacted in USD SSA bonds in the United States with Class members at artificial prices at the direction of and with the knowledge and consent of Bank of America Merrill Lynch International Limited and Merrill Lynch International, who knew such transactions were with U.S. counterparties.

45. Defendant Bank of America Merrill Lynch International Limited (“BAMLIL”) is a company organized under the laws of the United Kingdom with its principal place of business in London, United Kingdom, and is an indirect subsidiary of BAC. According to FCA records, colluding SSA bond traders Amandeep Singh Manku and Hiren Gudka were registered as advisers to perform controlled functions or otherwise act on BAMLIL’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, BAMLIL (acting at least through Manku, and Gudka, but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. BAMLIL (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by BANA, MLPF&S, and/or other Bank of America affiliates, knowing and intending such transactions were with Class members in the United States, and booked the profit from such trades.

46. Defendant Merrill Lynch International (“MLI”) is a company organized under the laws of the United Kingdom with its principal place of business in London, United Kingdom,

and is an indirect subsidiary of BAC. According to FCA records, colluding SSA bond traders Amandeep Singh Manku, Hiren Gudka, [REDACTED] were registered as advisers to perform controlled functions or otherwise act on MLI's behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, MLI (acting at least through Manku, Gudka, [REDACTED] but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. MLI (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by BANA, MLPF&S, and/or other Bank of America affiliates, knowing and intending such transactions were with Class members in the United States, and booked the profit from such trades.

47. Defendant Merrill Lynch, Pierce, Fenner & Smith Inc. ("MLPF&S") is a corporation organized under the laws of Delaware with its principal place of business in New York, New York, and is a wholly owned subsidiary of BAC. As detailed more fully below, during the Class Period, MLPF&S directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York, including by serving as a trading broker. MLPF&S purposely transacted in USD SSA bonds in the United States with Class members at artificial prices at the direction of and with the knowledge and consent of BAMLIL and MLI, who knew such transactions were with U.S. counterparties.

48. MLPF&S executed collusive USD SSA bond trades with Plaintiffs Alaska Department of Revenue, Alaska Permanent Fund Corporation, and Iron Workers during the Class Period. Those transactions were done at artificial prices at the direction of and with the knowledge and consent of BAMLIL and MLI, who knew such transactions were with U.S. counterparties.

49. Defendants BANA, BAMLIL, MLI, and MLPF&S are referenced collectively in this Complaint as “Bank of America.”

50. Bank of America transacts business of substantial character in, and has substantial contacts with, New York, New York. For instance, BANA has one of its largest branches, with at least hundreds of employees, located at the “Bank of America Tower,” in New York, New York.⁶ Likewise, MLI has at least two “Global Wealth Management” offices, with many employees, located in New York, New York.⁷ As discussed above, MLPF&S has its principal place of business in New York, New York. In addition, BANA, BAMLIL, MLI, and MLPF&S each participated in collusive USD SSA bond trading with members of the Class located in New York, New York during the Class Period.

51. **Barclays.** Defendant Barclays Bank plc (“BBPLC”) is a corporation organized under the laws of the United Kingdom with its principal place of business in London, United Kingdom. BBPLC has at least two branches in the United States, including one in New York, New York. According to FCA records, colluding SSA bond trader [REDACTED] was registered as an adviser to perform controlled functions or otherwise act on BBPLC’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades

⁶ See Bank of America Locations, available at <https://locators.bankofamerica.com/ny/newyork/financial-centers-new-york-16579.html>.

⁷ See Merrill Lynch Global Offices, available at <https://www.ml.com/global-offices.html>.

with members of the Class. As detailed more fully below, during the Class Period, BBPLC (acting at least through [REDACTED] but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York, including by serving as a trading broker. BBPLC (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by Barclays Capital Inc. and/or other Barclays affiliates, knowing and intending such transactions were with Class members in the United States, and booked the profit from such trades.

52. BBPLC executed collusive USD SSA bond trades with Plaintiffs Alaska Department of Revenue and Alaska Permanent Fund Corporation during the Class Period. Those transactions were done at artificial prices, and BBPLC knew such transactions were with a U.S. counterparty.

53. Defendant Barclays Capital Inc. (“BCI”) is a corporation organized under the laws of Connecticut with its principal place of business in New York, New York. BCI is the main U.S. broker-dealer entity for the Barclays group. BCI had brokers based in the United States and New York who facilitated and executed USD SSA bond transactions with the Class. As detailed more fully below, during the Class Period, BCI directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York, including by serving as a trading broker. BCI purposely transacted in USD SSA bonds in the United States with Class members at artificial prices at the direction of and with the knowledge and consent of BBPLC, Barclays

Services Limited, and Barclays Capital Securities Limited, who knew such transactions were with U.S. counterparties.

54. BCI executed collusive USD SSA bond trades with Plaintiffs Alaska Department of Revenue, Alaska Permanent Fund Corporation, and Iron Workers during the Class Period. Those transactions were done at artificial prices at the direction of and with the knowledge and consent of BBPLC, Barclays Services Limited, and Barclays Capital Securities Limited, who knew such transactions were with U.S. counterparties.

55. Defendant Barclays Services Limited (“BSL”), formerly known as Barclays Capital Services Limited, is a corporation organized under the laws of the United Kingdom with its principal place of business in London, United Kingdom. BSL has acknowledged that it employed colluding SSA bond trader [REDACTED] during the Class Period. [REDACTED] acted on BSL’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, BSL (acting at least through [REDACTED] but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. BSL purposefully directed and controlled the trading of USD SSA bonds at artificial prices by BCI and/or other Barclays affiliates, knowing and intending such transactions were with Class members in the United States.⁸

⁸ While BSL has asserted that it did not personally transact in USD SSA bonds during the Class Period, it has admitted that its principal activity was to act as a clearinghouse for the employment contracts with the wrongdoers at issue at Barclays. It is responsible for the wrongdoing by Barclays’ employees, regardless of whether the transactions their employees marketed, priced, and executed were later nominally booked in the name of a corporate affiliate.

56. Defendant Barclays Capital Securities Limited (“BCSL”) is a corporation organized under the laws of the United Kingdom with its principal place of business in London, United Kingdom. According to FCA records, colluding SSA bond trader [REDACTED] was registered as an adviser to perform controlled functions or otherwise act on BCSL’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, BCSL (acting at least through [REDACTED] but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. BCSL (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by BCI and/or other Barclays affiliates, knowing and intending such transactions were with Class members in the United States, and booked the profit from such trades.

57. Defendants BBPLC, BCI, BSL, and BCSL are referenced collectively in this Complaint as “Barclays.”

58. Barclays transacts business of substantial character in, and has substantial contacts with, New York, New York. For instance, BBPLC has at least two branches located in New York, New York, is registered with the New York Department of Financial Services (“NYDFS”) to do business in New York, and has at least hundreds of employees located in New York, New York.⁹ Barclays also has other substantial interests in New York, New York. For

⁹ See Consent Order Under New York Banking Law §§ 44 and 44-a at 1, *In re Barclays Bank PLC*, New York Branch (2015) (available at <https://www.dfs.ny.gov/about/ea/ea151117.pdf>).

example, the Barclays Center—a sports arena for which Barclays paid \$400 million for the naming rights—is located in Brooklyn, New York.¹⁰ As discussed above, BCI has its principal place of business in New York, New York. Barclays also has other interests in the state. In addition, BBPLC, BCI, BSL, and BCSL each participated in collusive USD SSA bond trading with members of the Class located in New York, New York during the Class Period.

59. **BNP Paribas.** Defendant BNP Paribas S.A. is a corporation organized under the laws of France with its principal place of business in Paris, France. According to FCA records, colluding SSA bond trader [REDACTED] was registered an adviser to perform controlled functions or otherwise act on BNP Paribas S.A.’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, BNP Paribas S.A. (acting at least through [REDACTED] but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. BNP Paribas S.A. (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by BNP Securities Corp. and/or other BNP Paribas affiliates, knowing and intending such transactions were with Class members in the United States, and booked the profit from such trades.

60. Defendant BNP Paribas Securities Corp. (“BNP Securities”) is a corporation organized under the laws of Delaware with its principal place of business in New York, New

¹⁰ Richard Sandomir, *What’s in a Name? \$400 Million*, N.Y. TIMES (Jan. 19, 2007) (<http://www.nytimes.com/2007/01/19/sports/basketball/19sandomir.html>).

York. As detailed more fully below, during the Class Period, BNP Securities directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York, including by serving as a trading broker. BNP Securities purposely transacted in USD SSA bonds in the United States with Class members at artificial prices at the direction of and with the knowledge and consent of BNP Paribas S.A., who knew such transactions were with U.S. counterparties.

61. BNP Securities executed collusive USD SSA bond trades with Plaintiffs Alaska Department of Revenue and Alaska Permanent Fund Corporation during the Class Period. Those transactions were done at artificial prices at the direction of and with the knowledge and consent of BNP Paribas S.A., who knew such transactions were with U.S. counterparties.

62. Defendants BNP Paribas S.A. and BNP Securities are referenced collectively in this Complaint as “BNP Paribas.”

63. BNP Paribas transacts business of substantial character in, and has substantial contacts with, New York, New York. For instance, BNP Paribas S.A. has three branches in the United States, including at least one branch located in New York, New York, is registered with the NYDFS to do business in New York, and has at least 780 full-time employees in the United States, of which 78% were employed in New York, New York. As part of its extensive business in New York, BNP Paribas S.A. operates a “Corporate Coverage team,” which offers all of BNP Paribas’ products to customers in New York.¹¹ As of the end of 2016, BNP Paribas S.A. recognized €4.456 billion (about \$5 billion) in revenue from its operations in the United States, a significant portion of which came from its operations in New York.¹² As discussed above, BNP

¹¹ See BNP Paribas, *Registration Document and Annual Financial Report 2016*, at 13 (2017).

¹² *Id.* at 538.

Securities has its principal place of business in New York, New York. In addition, BNP Paribas S.A. and BNP Securities each participated in collusive USD SSA bond trading with members of the Class located in New York, New York during the Class Period.

64. **Citi.** Defendant Citigroup Inc. (“Citigroup”) is a corporation organized under the laws of Delaware with its principal place of business in New York, New York. Citigroup executed collusive USD SSA bond trades with members of the Class during the Class Period. As detailed more fully below, during the Class Period, Citigroup directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. Citigroup purposely transacted in USD SSA bonds in the United States with Class members at artificial prices at the direction of and with the knowledge and consent of Citigroup Global Markets Limited, who knew such transactions were with U.S. counterparties.

65. Defendant Citibank N.A. (“Citibank”) is a federally chartered, national banking association with its principal place of business in New York, New York, and is a subsidiary of Citigroup. According to FCA records, colluding SSA bond trader Gary McDonald was registered as an adviser to perform controlled functions or otherwise act on Citibank’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, Citibank (acting at least through McDonald, but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. Citibank purposely transacted in USD SSA bonds in the United States with Class members at artificial

prices at the direction of and with the knowledge and consent of Citigroup Global Markets Limited, who knew such transactions were with U.S. counterparties.

66. Citibank executed collusive USD SSA bond trades with Plaintiff Alaska Permanent Fund Corporation during the Class Period. Those transactions were done at artificial prices at the direction of and with the knowledge and consent of Citigroup Global Markets Limited, who knew such transactions were with a U.S. counterparty.

67. Defendant Citigroup Global Markets Inc. (“CGMI”) is a New York corporation with its principal place of business in New York, New York. CGMI is an indirect, wholly owned subsidiary of Citigroup. According to Financial Industry Regulatory Authority, Inc. (“FINRA”) records, colluding SSA bond trader [REDACTED] was registered to perform controlled functions or otherwise act on CGMI’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, CGMI (acting at least through [REDACTED] but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York, including by serving as a trading broker. CGMI purposely transacted in USD SSA bonds in the United States with Class members at artificial prices at the direction of and with the knowledge and consent of Citigroup Global Markets Limited, who knew such transactions were with U.S. counterparties.

68. CGMI executed collusive USD SSA bond trades with Plaintiffs Alaska Department of Revenue and Alaska Permanent Fund Corporation during the Class Period. Those transactions were done at artificial prices at the direction of and with the knowledge and consent

of Citigroup Global Markets Limited, who knew such transactions were with a U.S. counterparty.

69. Defendant Citigroup Global Markets Limited (“CGML”) is a private limited company organized under the laws of the United Kingdom with its principal place of business in London, United Kingdom. CGML is an indirect, wholly owned subsidiary of Citigroup. According to FCA records, Gary McDonald was registered as an adviser to perform controlled functions or otherwise act on CGML’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. McDonald has also admitted he was employed by CGML during the Class Period. As detailed more fully below, during the Class Period, CGML (acting at least through McDonald, but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. CGML (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by Citigroup, Citibank, CGMI, and/or other Citi affiliates, knowing and intending such transactions were with Class members in the United States, and booked the profit from such trades.

70. CGML executed collusive USD SSA bond trades with Plaintiff Alaska Department of Revenue during the Class Period. Those transactions were done at artificial prices, and CGML knew such transactions were with a U.S. counterparty.

71. Defendants Citigroup, Citibank, CGMI, and CGML are referenced collectively in this Complaint as “Citi.”

72. Citi transacts business of substantial character in, and has substantial contacts with, New York, New York. Likewise, CGML has many employees based in New York and doing business on its behalf. As discussed above, Citigroup, Citibank, and CGMI each have their principal place of business in New York, New York. In addition, Citigroup, Citibank, CGMI, and CGML each participated in collusive USD SSA bond trading with members of the Class located in New York, New York during the Class Period.

73. *Crédit Agricole*. Defendant Crédit Agricole Corporate and Investment Bank (“Crédit Agricole”) is a bank organized under the laws of France with its principal place of business in Paris, France. According to FCA records, colluding SSA bond traders Shailen Pau, Amandeep Singh Manku, [REDACTED] were registered as advisers to perform controlled functions or otherwise act on Crédit Agricole’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. Crédit Agricole has admitted that Pau, Manku, [REDACTED] were employed in Crédit Agricole’s London office, but has asserted that Pau, Manku, [REDACTED] were not technically employed by Crédit Agricole. Even assuming that is true, it is of no moment, because these traders were acting on Crédit Agricole’s behalf. As detailed more fully below, during the Class Period, Crédit Agricole (acting at least through Pau, Manku, [REDACTED] but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. Crédit Agricole’s top executives are located in New York, including both the Head of International for the Global Markets Division of Crédit Agricole and its Chief Financial Officer. Crédit Agricole (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S.

counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by Crédit Agricole affiliates, knowing and intending such transactions were with Class members in the United States, and booked the profit from such trades.

74. Crédit Agricole transacts business of substantial character in, and has substantial contacts with, New York, New York. For instance, Crédit Agricole has two branch locations in the United States, including one branch located in New York, New York, is registered with the NYDFS to do business in New York, and has many employees located in New York, New York. Some of Crédit Agricole's top executives are located in New York, including both the Head of International for the Global Markets Division of Crédit Agricole and its Chief Financial Officer. In 2016, Crédit Agricole recognized €939 million (\$988 million) in revenue from its operations in the United States, a significant portion of which came from its operations in New York. Crédit Agricole operates its parent's corporate and investment banking business line, which Crédit Agricole S.A. has touted as "the strategic partner of its customers, corporates, and financial institutions, in France and internationally, thanks to its network in the main countries in Europe, Americas, Asia-Pacific and Middle East."¹³ In addition, Crédit Agricole participated in collusive USD SSA bond trading with members of the Class located in New York, New York during the Class Period.

75. **Credit Suisse.** Defendant Credit Suisse AG ("CSAG") is a bank organized under the laws of Switzerland with its principal place of business in Zurich, Switzerland. CSAG is the principal operating subsidiary of Credit Suisse Group AG. According to FCA records, colluding SSA bond trader Shailen Pau was registered as an adviser to perform controlled functions or otherwise act on CSAG's behalf during the Class Period, which included pricing, promoting, and

¹³ See Crédit Agricole S.A., *Annual Financial Report Registration Document 2015*, at 23 (2016).

executing collusive USD SSA bond trades with members of the Class. CSAG is registered with the NYDFS to do business in New York. As detailed more fully below, during the Class Period, CSAG (acting at least through Pau, but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. CSAG (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by Credit Suisse Securities (USA) LLC and/or other Credit Suisse affiliates, knowing and intending such transactions were with Class members in the United States, and booked the profit from such trades.

76. Defendant Credit Suisse Securities (USA) LLC (“CSSUSA”) is a corporation organized under the laws of Delaware with its principal place of business in New York, New York, and is a wholly owned subsidiary of Credit Suisse Group AG. According to FINRA records, colluding SSA bond trader Shailen Pau was registered to perform controlled functions or otherwise act on CSSUSA’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, CSSUSA directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York, including by serving as a trading broker. CSSUSA purposely transacted in USD SSA bonds in the United States with Class members at artificial prices at the direction of and with the knowledge and consent of CSAG, Credit Suisse

Securities (Europe) Limited, and Credit Suisse International, who knew such transactions were with U.S. counterparties.

77. CSSUSA executed collusive USD SSA bond trades with Plaintiffs Alaska Department of Revenue, Alaska Permanent Fund Corporation, and Iron Workers during the Class Period. Those transactions were done at artificial prices at the direction of and with the knowledge and consent of CSAG, Credit Suisse Securities (Europe) Limited, and Credit Suisse International, who knew such transactions were with U.S. counterparties.

78. Defendant Credit Suisse Securities (Europe) Limited (“CSSEL”) is a company organized under the laws of the United Kingdom with its principal place of business in London, United Kingdom, and is a subsidiary of Credit Suisse Group AG. According to FINRA and FCA records, colluding SSA bond trader Shailen Pau was registered to perform controlled functions or otherwise act on CSSEL’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, CSSEL (acting at least through Pau, but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. CSSEL (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by CSSUSA and/or other Credit Suisse affiliates, knowing and intending such transactions were with Class members in the United States, and booked the profit from such trades.

79. Defendant Credit Suisse International (“CSI”) is a company organized under the laws of the United Kingdom with its principal place of business in London, United Kingdom, and is a subsidiary of Credit Suisse Group AG. According to FCA records, colluding SSA bond trader Shailen Pau was registered as an adviser to perform controlled functions or otherwise act on CSI’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, CSI (acting at least through Pau, but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. CSI (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by CSSUSA and/or other Credit Suisse affiliates, knowing and intending such transactions were with Class members in the United States, and booked the profit from such trades.

80. Defendants CSAG, CSSUSA, CSSEL, and CSI are referenced collectively in this Complaint as “Credit Suisse.”

81. Credit Suisse transacts business of substantial character in, and has substantial contacts with, New York, New York. For instance, CSAG’s main “Americas” office is located in New York, New York, is licensed by the NYDFS to do business in New York, and has all 105 of its U.S.-based employees located in New York, New York.¹⁴ CSSEL has significant operations in New York through its 16 U.S. subsidiaries, and in 2016, approximately 31% of CSSEL’s credit risk exposures were from its operations in the United States, a significant portion

¹⁴ See Credit Suisse Group AG & Credit Suisse AG, *Annual Report 2016*, at A-12 (2017).

of which came from its operations in New York.¹⁵ Likewise, CSI has significant operations in New York through its U.S. subsidiaries and affiliates, and in 2016, approximately 32% of CSI's credit risk exposures were attributable to the United States, a significant portion of which came from its operations in New York.¹⁶ As discussed above, CSSUSA has its principal place of business in New York, New York. In addition, CSAG, CSSUSA, CSSEL, and CSI each participated in collusive USD SSA bond trading with members of the Class located in New York, New York, during the Class Period.

82. **Deutsche Bank.** Defendant Deutsche Bank AG ("DBAG") is a corporation organized under the laws of Germany with its principal place of business in Frankfurt, Germany. According to FCA records, colluding SSA bond traders Hiren Gudka [REDACTED] were registered as advisers to perform controlled functions or otherwise act on DBAG's behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, DBAG (acting at least through Gudka [REDACTED] but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. DBAG (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by Deutsche Bank Securities Inc. and/or other Deutsche Bank affiliates, knowing and intending such

¹⁵ See Credit Suisse Securities (Europe) Limited, *Annual Report 2016*, at 12 (2017).

¹⁶ See Credit Suisse International, *Annual Report 2016*, at 13 (2017).

transactions were with Class members in the United States, and booked the profit from such trades.

83. Defendant Deutsche Bank Securities Inc. (“DBSI”) is a corporation organized under the laws of Delaware with its principal place of business in New York, New York, and is an indirect wholly owned subsidiary of DBAG. As detailed more fully below, during the Class Period, DBSI directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York, including by serving as a trading broker. DBSI purposely transacted in USD SSA bonds in the United States with Class members at artificial prices at the direction of and with the knowledge and consent of DBAG, who knew such transactions were with U.S. counterparties.

84. DBSI executed collusive USD SSA bond trades with Plaintiffs Alaska Department of Revenue and Alaska Permanent Fund Corporation during the Class Period. Those transactions were done at artificial prices at the direction of and with the knowledge and consent of DBAG, who knew such transactions were with U.S. counterparties.

85. Defendants DBAG and DBSI are referenced collectively in this Complaint as “Deutsche Bank.”

86. Deutsche Bank transacts business of substantial character in, and has substantial contacts with, New York, New York. For instance, DBAG has a branch located in New York, New York, and is regulated by the NYDFS, Federal Reserve Board, and U.S. Commodity Futures Trading Commission (“CFTC”). DBAG has described its New York branch as a Material Entity, which is defined as “significant to the activities of a core business line or critical

operation.”¹⁷ As discussed above, DBSI has its principal place of business in New York, New York. In addition, DBAG and DBSI both participated in collusive USD SSA bond trading with members of the Class located in New York, New York during the Class Period.

87. **HSBC.** Defendant HSBC Securities (USA) Inc. (“HSBC USA”) is a corporation organized under the laws of Delaware with its principal place of business in New York, New York, and is an indirect subsidiary of HSBC Holdings plc. According to FCA and FINRA records, colluding SSA bond traders Amandeep Singh Manku [REDACTED] were registered as advisers to perform controlled functions or otherwise act on HSBC USA’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, HSBC USA directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York, including by serving as a trading broker. HSBC USA purposely transacted in USD SSA bonds in the United States with Class members at artificial prices at the direction of and with the knowledge and consent of HSBC Bank plc, who knew such transactions were with U.S. counterparties.

88. HSBC USA executed collusive USD SSA bond trades with Plaintiffs Alaska Department of Revenue and Alaska Permanent Fund Corporation during the Class Period. Those transactions were done at artificial prices at the direction of and with the knowledge and consent of HSBC Bank plc, who knew such transactions were with U.S. counterparties.

¹⁷ 12 C.F.R. § 381.2(l) (2011) (defining material entity for federal resolution plans); see *Deutsche Bank U.S. Resolution Plan*, Jul. 1, 2014, at 3 (available at <http://www.federalreserve.gov/bankinfo/resolution-plans/deutsche-bank-1g-20140701.pdf>).

89. Defendant HSBC Bank plc (“HSBCB”) is a company organized under the laws of the United Kingdom with its principal place of business in London, United Kingdom, and is a subsidiary of HSBC Holdings plc. HSBCB’s trading desk is responsible for market making and the trading of USD SSA bonds. According to FCA records, colluding SSA bond traders Amandeep Singh Manku and [REDACTED] were registered as advisers to perform controlled functions or otherwise act on HSBCB’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, HSBCB (acting at least through Manku, but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. HSBCB (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by HSBC USA and/or other HSBC affiliates, knowing and intending such transactions were with Class members in the United States, and booked the profit from such trades.

90. Defendants HSBC USA and HSBCB are referenced collectively in this Complaint as “HSBC.”

91. HSBC regularly transacts business of substantial character in, and has substantial contacts with, New York, New York. HSBC is considered a top tier dealmaker for SSA bonds, and has taken “the top spot in global SSA volumes” as recently as 2015.¹⁸ HSBC’s team,

¹⁸ Virginia Furness, *HSBC and Barclays top SSA leagues in 2015*, GLOBAL CAPITAL. (Dec. 22, 2015), <https://www.globalcapital.com/article/vqsb1kf7qgbv/hsbc-and-barclays-top-ssa-leagues-in-2015>

including salespeople and traders, offered multiple services for SSA bond markets, often from the United States, including in New York, New York. HSBC USA has its principal place of business in New York, New York. Likewise, HSBC has many employees based in New York and doing business on its behalf. In addition, HSBC USA and HSBCB both participated in collusive USD SSA bond trading with members of the Class located in New York, New York, during the Class Period.

92. **Nomura.** Defendant Nomura Securities International, Inc. (“NSII”) is a corporation organized under the laws of New York, with its principal place of business in New York, New York. NSII executed collusive USD SSA bond trades with members of the Class during the Class Period. As detailed more fully below, during the Class Period, NSII directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York, including by serving as a trading broker. NSII purposely transacted in USD SSA bonds in the United States with Class members at artificial prices at the direction of and with the knowledge and consent of Nomura International plc, who knew such transactions were with U.S. counterparties.

93. NSII executed a collusive USD SSA bond trade with Plaintiff Iron Workers during the Class Period. That transaction was done at artificial prices at the direction of and with the knowledge and consent of NIPLC, who knew such transaction was with U.S. counterparties.

94. Defendant Nomura International plc (“NIPLC”) is a company organized under the laws of the United Kingdom with its principal place of business in London, United Kingdom. According to FCA records, colluding SSA bond traders Bhardeep Singh Heer [REDACTED] [REDACTED] were registered as advisers to perform controlled functions or otherwise act on NIPLC’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD

SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, NIPLC (acting at least through Heer [REDACTED] but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. NIPLC (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by NSII and/or other Nomura affiliates, knowing and intending such transactions were with Class members in the United States, and booked the profit from such trades.

95. Defendants NSII and NIPLC are referenced collectively in this Complaint as “Nomura.”

96. Nomura transacts business of substantial character in, and has substantial contacts with, New York, New York. NIPLC has many employees based in New York and doing business on its behalf. As discussed above, NSII has its principal place of business in New York, New York. In addition, NSII and NIPLC each participated in collusive USD SSA bond trading with members of the Class located in New York, New York, during the Class Period.

97. **RBC.** Defendant Royal Bank of Canada is a company organized under the laws of Canada with its principal place of business in Toronto, Canada. According to FCA records, colluding SSA bond traders Shailen Pau and [REDACTED] were registered as advisers to perform controlled functions or otherwise act on Royal Bank of Canada’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, Royal Bank of Canada (acting at least through Pau [REDACTED] but likely many additional employees) directed

its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. Royal Bank of Canada (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by RBC Capital Markets, LLC and/or other RBC affiliates, knowing and intending such transactions were with Class members in the United States, and booked the profit from such trades.

98. Defendant RBC Capital Markets, LLC (“RBCCM”) (formerly RBC Capital Markets Corp.), is a limited liability company organized under the laws of Minnesota with its principal place of business in New York, New York. According to FINRA records, colluding SSA bond trader Shailen Pau was registered to perform controlled functions or otherwise act on RBC Capital Markets Corp.’s behalf (before it was renamed RBCCM) during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. At all relevant times, RBCCM has been a wholly owned indirect subsidiary of the Royal Bank of Canada. As detailed more fully below, during the Class Period, RBCCM directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York, including by serving as a trading broker. RBCCM purposely transacted in USD SSA bonds in the United States with Class members at artificial prices at the direction of and with the knowledge and consent of Royal Bank of Canada and RBC Europe Limited, who knew such transactions were with U.S. counterparties.

99. RBCCM executed collusive USD SSA bond trades with Plaintiffs Alaska Department of Revenue, Alaska Permanent Fund Corporation, and Iron Workers during the Class Period. Those transactions were done at artificial prices at the direction of and with the knowledge and consent of Royal Bank of Canada and RBC Europe Limited, who knew such transactions were with U.S. counterparties.

100. Defendant RBC Europe Limited (“RBCEL”) is a company organized under the laws of the United Kingdom with its principal place of business in London, United Kingdom, and is a subsidiary of Royal Bank of Canada. According to FCA records, colluding SSA bond traders Shailen Pau [REDACTED] were registered as advisers to perform controlled functions or otherwise act on RBCEL’s behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class.¹⁹ As detailed more fully below, during the Class Period, RBCEL (acting at least through Pau [REDACTED] but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. RBCEL (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by RBCCM and/or other RBC affiliates, knowing and intending such

¹⁹ [REDACTED]

[REDACTED] It is simply unlikely that these traders would change banks and immediately stop colluding with their fellow conspirators who had made them so much money before. [REDACTED]

[REDACTED] worked at RBC. Future discovery will likely yield substantial additional evidence of RBC’s role in the conspiracy.

transactions were with Class members in the United States, and booked the profit from such trades.

101. Defendants Royal Bank of Canada, RBCCM, and RBCEL are referenced collectively in this Complaint as “RBC.”

102. RBC transacts business of substantial character in, and has substantial contacts with, New York, New York. For instance, Royal Bank of Canada has nine offices in the United States, including three branches in New York, each of which are licensed by the Office of the Comptroller of the Currency,²⁰ and is registered with NYDFS, Federal Reserve Bank of New York, U.S. Securities and Exchange Commission (“SEC”), CFTC, and FINRA to do business in New York. Royal Bank of Canada has at least hundreds of employees located in New York, New York, and at least three members of Royal Bank of Canada’s Board of Directors reside in New York. Royal Bank of Canada’s stock is listed on the New York Stock Exchange. Royal Bank of Canada has reported that its mission in the United States is “to be the preferred partner to corporate, institutional and high net worth clients and their businesses,” and in 2016, 22% of Royal Bank of Canada’s revenue came from operations in the United States, a significant portion of which came from its operations in New York, New York.²¹ For the fiscal year ending on October 31, 2017, Royal Bank of Canada’s U.S. operations resulted in net income of C\$1.714 billion (about \$1.3 billion) and assets of C\$323.895 billion (about \$250 billion) based on historical exchange rates. As discussed above, RBCCM has its principal place of business in New York, New York. In addition, Royal Bank of Canada, RBCCM, and RBCEL each

²⁰ Royal Bank of Canada, *Form 40-F*, at 7 (Nov. 30, 2016).

²¹ Royal Bank of Canada, *Annual Report 2016*, at 1-2 (2016).

participated in collusive USD SSA bond trading with members of the Class located in New York, New York during the Class Period.

103. **TD Bank.** Defendant The Toronto-Dominion Bank is a corporation organized under the laws of Canada with its principal place of business in Toronto, Canada. According to FCA records, colluding SSA bond trader Gary McDonald was registered as an adviser to perform controlled functions or otherwise act on The Toronto-Dominion Bank's behalf during the Class Period, which included pricing, promoting, and executing collusive USD SSA bond trades with members of the Class. As detailed more fully below, during the Class Period, The Toronto-Dominion Bank (acting at least through McDonald, but likely many additional employees) directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. The Toronto-Dominion Bank (a) itself purposely transacted in USD SSA bonds in the United States with Class members at artificial prices, knowing such transactions were with U.S. counterparties; and (b) purposefully directed and controlled the trading of even more USD SSA bonds at artificial prices by TD Securities (USA) LLC and/or other TD affiliates, knowing and intending such transactions were with Class members in the United States, and booked the profit from such trades.

104. Defendant TD Securities (USA) LLC ("TDS USA") is a limited liability company organized under the laws of Delaware with its principal place of business in New York, New York, and is a subsidiary of The Toronto-Dominion Bank. As detailed more fully below, during the Class Period, TDS USA directed its collusive USD SSA bond trading activities to the United States, including to New York in particular, and engaged in these activities in the United States, including in New York. TDS USA purposely transacted in USD SSA bonds in the United States

with Class members at artificial prices at the direction of and with the knowledge and consent of The Toronto-Dominion Bank, who knew such transactions were with U.S. counterparties.

105. TDS USA executed collusive USD SSA bond trades with Plaintiffs Alaska Department of Revenue and Iron Workers during the Class Period. Those transactions were done at artificial prices at the direction of and with the knowledge and consent of The Toronto-Dominion Bank, who knew such transactions were with U.S. counterparties.

106. Defendants The Toronto-Dominion Bank and TDS USA are referenced collectively in this Complaint as “TD Bank.”

107. TD Bank transacts business of substantial character in, and has substantial contacts with, New York, New York. For instance, The Toronto-Dominion Bank has two locations in the United States, including one branch and has many employees located in New York, New York. In 2016, The Toronto-Dominion Bank recognized C\$12.217 billion (about \$9 billion) in revenue from its operations in the United States, or about 36% of the company’s total revenues for the year, a significant portion of which came from its operations in New York, New York.²² The Toronto-Dominion Bank is listed on the New York Stock Exchange, and at least one member of its Board of Directors resides in New York, New York. As discussed above, TDS USA has its principal place of business in New York, New York. In addition, The Toronto-Dominion Bank and TDS USA each participated in collusive USD SSA bond trading with members of the Class located in New York, New York, during the Class Period.

2. Individual Defendants

108. Defendant Hiren Gudka (“Gudka”) is an individual residing in Middlesex, United Kingdom. During the Class Period, Gudka was an SSA bond trader employed by or acting on

²² The Toronto-Dominion Bank, *Annual Report 2016*, at 192 (2017).

behalf of Defendants Bank of America (BAMLIL, BANA, and MIL) and Deutsche Bank (Deutsche Bank AG). [REDACTED]

[REDACTED] He was personally responsible for USD SSA transactions that were done at artificial prices with members of the Class in the United States (including in New York), knowing and intending that was the case. He was also responsible for the pricing of even more USD SSA bond transactions (even if later booked by others), knowing and intending the artificial prices he was directing others to use were for transactions with U.S. (and New York) counterparties. He also directed the marketing and promotional efforts for USD SSA bonds that targeted the United States (including specifically New York).

109. In connection with his activities in trading SSA bonds, Gudka reported directly to managers at Deutsche Bank in New York, and often transacted in SSA bonds at the direction of his New York-based team. On multiple occasions during the Class Period, Gudka traveled to New York to visit with his New York accounts, promote his USD SSA bond trading services, and maintain relationships with his New York-based customers for USD SSA bonds. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] As noted above, Gudka is under investigation by the DOJ concerning his SSA bond trading activities.

110. Defendant Bhardeep Singh Heer (“Heer”) is an individual residing in Essex, United Kingdom. During the Class Period, Heer was an SSA bond trader employed by Nomura

(Nomura International plc). As discussed more fully below, during the Class Period, Heer directed his USD SSA bond trading activities to the United States and New York in particular. On multiple occasions during the Class Period, Heer traveled to New York to visit with his New York accounts, promote his USD SSA bond trading services, and maintain relationships with his New York-based customers for USD SSA bonds. He was personally responsible for USD SSA transactions that were done at artificial prices with members of the Class in the United States (including in New York), knowing and intending that was the case. He was also responsible for the pricing of even more USD SSA bond transactions (even if later booked by others), knowing and intending the artificial prices he was directing others to use were for transactions with U.S. (and New York) counterparties. He also directed the marketing and promotional efforts for USD SSA bonds that targeted the United States (including specifically New York).

111. Defendant Amandeep Singh Manku (“Manku”) is an individual residing in Essex, United Kingdom. During the Class Period, Manku was an SSA bond trader employed by or acting on behalf of Bank of America (BAMLIL, BANA, MLI), Crédit Agricole, and HSBC (HSBC USA, HSBCB). [REDACTED]

[REDACTED]

Manku was previously a broker registered with FINRA (CRD #4730575). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] As noted above, Manku is under investigation by the DOJ concerning his SSA bond trading activities. He was personally responsible for USD SSA transactions that were done at artificial prices with members of the Class in the United States (including in New York), knowing and intending that was the case. He was also responsible for

the pricing of even more USD SSA bond transactions (even if later booked by others), knowing and intending the artificial prices he was directing others to use were for transactions with U.S. (and New York) counterparties. He also directed the marketing and promotional efforts for USD SSA bonds that targeted the United States (including specifically New York).

112. Defendant Gary McDonald (“McDonald”) is an individual residing in London, United Kingdom. During the Class Period, McDonald was an SSA bond trader employed by or acting on behalf of Citi (CGML, Citibank) and TD Bank (The Toronto-Dominion Bank), and had close ties to Gudka. During the Class Period, McDonald directed his USD SSA bond trading activities to the United States and New York. On various occasions during the Class Period, McDonald traveled to New York to visit with his New York accounts, promote his USD SSA bond trading services, and maintain relationships with his New York-based customers for USD SSA bonds. He was personally responsible for USD SSA transactions that were done at artificial prices with members of the Class in the United States (including in New York), knowing and intending that was the case. He was also responsible for the pricing of even more USD SSA bond transactions (even if later booked by others), knowing and intending the artificial prices he was directing others to use were for transactions with U.S. (and New York) counterparties. He also directed the marketing and promotional efforts for USD SSA bonds that targeted the United States (including specifically New York).

113. Defendant Shailen Pau (“Pau”) is an individual residing in London, United Kingdom. During the Class Period, Pau was an SSA bond trader employed by or acting on behalf of RBC (Royal Bank of Canada, RBCEL, RBCCM), Credit Suisse (CSAG, CSI, CSSEL, CSSUSA) and Crédit Agricole. [REDACTED]

[REDACTED]

On multiple occasions during the Class Period, Pau traveled to New York to visit with his New York accounts, promote his USD SSA bond trading services, and maintain relationships with his New York-based customers for USD SSA bonds. He was personally responsible for USD SSA transactions that were done at artificial prices with members of the Class in the United States (including in New York), knowing and intending that was the case. He was also responsible for the pricing of even more USD SSA bond transactions (even if later booked by others), knowing and intending the artificial prices he was directing others to use were for transactions with U.S. (and New York) counterparties. He also directed the marketing and promotional efforts for USD SSA bonds that targeted the United States (including specifically New York).

114. Pau was previously a broker registered with FINRA (CRD #4439683). Pau worked with his New York-based sales affiliates to generate business in the USD SSA bond market, worked directly with a New York fund, and traveled to New York for business purposes.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

BACKGROUND FACTUAL ALLEGATIONS

A. The SSA Bond Market

115. The SSA bond market occupies a “segment of the broader bond market, sitting between sovereign government issuers on the one hand and private credit issuers on the other.”²³

²³ Rabobank, *SSA Market Primer*, at 1 (Sep. 12, 2014).

SSA bonds are issued by supranational organizations, sovereign and sub-sovereign entities, and quasi-governmental agencies, all of which are generally mandated with social or economic public policy initiatives, such as infrastructure development, economic stimulus, or export acceleration. Due to their special status conferred by law, or an explicit or implicit guaranty by one or more governments to back them, SSA bonds are generally regarded as highly secure investments.

116. *Supranational organizations*: Supranational bond issuers are large, multilateral institutions with shareholders from several countries and global economic mandates. “The original creation of such institutions was generally the result of a perceived market failure, where suitable funding sources were unavailable or unreliable, thus creating the need for an alternative source of secure funding.”²⁴ Supranationals are vehicles for multiple states or shareholders from different countries to pool their resources to direct to particular projects or countries. They can be global, continental or regional in their focus. Examples of supranationals include the International Bank for Reconstruction and Development (“IBRD”) and the International Finance Corporation (“IFC”) of the World Bank Group; the European Investment Bank (“EIB”); and the African and Asian Development Banks (“AfDB” and “ASIA,” respectively).

117. *Sovereign and sub-sovereign borrowers*: Sovereign bond issuers are sovereign governments, such as the Federal Republic of Germany, the Kingdom of Spain, and the Government of Canada, which issue debt in currencies other than their local currency.²⁵ The category of “sovereign” issuers also includes sub-sovereign bond issuers, which are state-level

²⁴ *Id.* at 2.

²⁵ Sovereign debt issued in a sovereign’s domestic currency, such as U.S. Treasury bonds or U.K. gilts, are not considered part of the SSA bond market.

entities sitting at least one level below a sovereign government. Examples of sub-sovereign issuers include Germany's states (Länder) and Canada's provinces.

118. *Agency borrowers:* Agency bond issuers include subdivisions of a sovereign state or other institutions that perform tasks on behalf of a governing sovereign, such as Germany's Kreditanstalt für Wiederaufbau ("KfW") (a government-owned investment bank), France's Societe de Financement de l'Economie Francaise ("SFEFR") (a refinancing vehicle for French banks) and Caisse d'Amortissement de la Dette Sociale ("CADES") (an administrative public agency under the authority of the French government that provides accounting and financial information for financial markets, as well as issues inflation-linked bonds, among other things), and Spain's Instituto de Credito Oficial ("ICO") (a corporate state-owned entity with its own legal status, assets and independent management that enters into debts and obligations with unconditional guarantee of the Spanish state). Agencies include public banks, workout banks, infrastructure development bodies, export financiers, and social security facilities.²⁶

119. SSA bond issuers issue bonds on a regular basis to raise capital needed to fund their global, continental, and regional projects and development programs. During the Class Period, a handful of bond issuers, for which Defendant Dealers often served as underwriters, represented about 40% of the total SSA issuance market. [REDACTED]

- KfW – about 12% of SSA bond issues
- EIB – about 10% of SSA bond issue
- IBRD – about 8% of SSA bond issues

²⁶ For the sake of clarity, this action is not about "agency" bonds issued in U.S. dollar-denominations by U.S. government-sponsored enterprises, such as the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation.

- CADES – about 4% of SSA bond issues
- Bank Nederlandse Gemeenten (“BNG”) – about 4% of SSA bond issues

120. The United States is a shareholder in a number of supranational issuers of SSA bonds, including the IBRD. The principle terms of the articles of these institutions are incorporated into U.S. federal law and enforceable as any other federal statute. These supranational issuers may be sued in U.S. courts if they default on a payment to an investor. The supranational issuers of which the United States is a member and their implementing statutes are identified below:

Supranational	Acts of Congress
World Bank (IBRD)	Bretton Woods Act, 22 U.S.C. § 286, et. seq.
International Finance Corporation (IFC)	International Finance Corporation Act 22 U.S.C. § 282, et. seq.
Inter-American Development Bank (IADB)	Inter-American Development Act 22 U.S.C. § 283, et. seq.
Asian Development Bank (ASIA)	Asian Development Bank Act 22 U.S.C. § 285, et. seq.
European Bank of Reconstruction and Development (EBRD)	European Bank for Reconstruction and Development Act 22 U.S.C. § 290l, et. seq.
African Development Bank (AfDB)	African Development Bank Act 22 U.S.C. § 290i, et. seq.

B. U.S. Dollar-Denominated SSA Bonds

121. Issuers determine the currency in which an SSA bond issue will be denominated. The most common options include U.S. dollars, Euros, pounds sterling, and Yen. The decision as to which currency to use is often driven by the particular market in which the borrower seeks to maintain a portfolio, as well as the foreign exchange rates, and the amount of capital the borrower needs to raise. The larger SSA issuers may issue bonds in multiple currencies so as to have exposure to a broad array of investors.

122. This case concerns USD SSA bonds, at least some of which are referred to as “Yankee” bonds,” because they are “issued by a foreign entity” but predominantly “issued and

traded in the United States and denominated in U.S. dollars.”²⁷ USD SSA bonds are primarily marketed to investors located in the United States. Data from MarketAxess, for example, shows that in 2013 over 75% of USD SSA activity came from U.S.-based clients.

123. SSA issuers who wish to target the U.S. bond market specifically will issue bonds in U.S. dollars. The U.S. bond market is particularly attractive for issuers because many U.S.-based investors—including pension funds, asset managers, insurance companies, university endowments, and state and municipal governments—often hold most of their assets in U.S. dollars and may be mandated to invest a certain percentage of their assets in U.S. dollar-denominated assets. The U.S. dollar-denominated segment of the SSA bond market is also attractive to investors located in the United States, particularly those looking for high-quality bonds with higher yields than U.S. Treasuries.

124. Today, there are over \$960 billion in USD SSA bonds outstanding. Many of these bonds are registered with the SEC. Others, as discussed below, are exempt from registration but are still allowed to be marketed and sold in the United States.

125. USD SSA bonds are typically issued through syndication. In a syndication, an SSA institution seeking to issue bonds will retain a bank or group of banks to underwrite its bond issue and then sell those bonds to investors. The syndicate banks serve as the lead managers or “bookrunners” on the deal, and are responsible for finding investors to purchase the bonds at the time of issuance and also for pricing the bonds. These banks “sound the market” to gauge investor interest, build the order book (*i.e.*, collect orders from investors) for the bonds, and determine the final size of the issue and how many bonds to allocate to each investor.

²⁷ *Yankee Bond*, INVESTOPEDIA, http://www.investopedia.com/terms/y/yankeebond.asp?optly_redirect=integrated&lgl=myfinance-dynamic-tags.

126. USD SSA bonds are generally either immediately available to U.S. investors at issuance or very soon thereafter. Bonds may be sold to U.S. investors without full registration with the SEC if they are issued to U.S. Qualified Institutional Buyers (“QIBs”) under Rule 144A. Bonds issued under Rule 144A format are eligible to be sold to QIBs immediately at issuance, and are indeed often issued precisely to target U.S. investors. Bonds issued under Regulation S are restricted from sale to U.S. investors for a short 40-day seasoning period after the initial settlement date of the new bonds, but are often sold to U.S. investors in the secondary market after that period.

127. Prospectuses for USD SSA bonds often state that the notes, guarantees, or indentures are to be interpreted and/or governed by New York law. Some USD SSA bond prospectuses also list New York-based registrars, New York underwriters, or agents who maintain offices in New York. Many prospectuses also require notices on the notes to be published in New York newspapers.

128. The Depository Trust Company (“DTC”), which is organized under New York law and is headquartered in New York, is a utility for the financial markets. As can be seen in numerous prospectuses for USD SSA bonds that were transacted between the Class and the Dealer Defendants, DTC often serves as a servicer and custodian (or appoints a custodian) for USD SSA bonds for U.S.-based investors. Notes are often deposited with or on behalf of DTC, which typically maintains records on the bond offerings.

C. Trading of SSA Bonds

129. The USD SSA bonds market is an over-the-counter (“OTC”) trading market. After being issued, SSA bonds can be re-sold and traded by dealers and investors, including by sovereign wealth funds, central banks, pension funds, mutual funds, and hedge funds. Unlike with major exchanges such as the Nasdaq or the New York Stock Exchange, there is no open,

anonymous exchange that matches SSA bond buyers and sellers at the best available price.

Rather, investors trade SSA bonds OTC, meaning that investors seeking to trade SSA bonds have no choice but to transact with dealers, such as the Dealer Defendants, who provide liquidity or “make markets” by being willing to buy and sell SSA bonds.

130. Most investor trading of SSA bonds during the Class Period occurred in a so-called “voice” environment, meaning that transactions were executed over the telephone or via electronic chat messaging. In a typical voice trade, an investor contacted one or more dealers’ sales desks to request a quote. The sales desk communicated the request to the dealer’s trading desk, which returned a quote that the sales desk relayed back to the investor. The process typically took several minutes. The time gap between quote requests and order executions provided Defendants with the lead time they needed to collude in chat rooms, instant messaging services, or over the telephone.

131. To a lesser degree, investors also used electronic trading platforms to execute orders with dealers during the Class Period. Electronic trading platforms include single-dealer systems, as well as multi-dealer platforms, such as MarketAxess, TradeWeb, Bloomberg BondTrader, and MTS Bondvision. Multi-dealer platforms enabled investors to request quotes from multiple dealers simultaneously, using a request for quote (“RFQ”) protocol that effectively replicated the limitations of the OTC marketplace.

132. Whether investors transacted by voice or through electronic trading platforms, the essential features of the protocol were the same. Investors had no access to real time market data to validate whether dealers’ quotes were competitive. Rather, investors were forced to rely exclusively on dealers such as Defendants for pricing information on SSA bonds. To find out the price of an SSA bond, investors had to reach out to a dealer and request a quote. In the

process, the investor would reveal their identity, the specific instrument and volume they sought to trade, and often the trade's direction.

133. An investor interested in buying or selling an SSA bond generally contacted no more than a few dealers. This is because it was time-consuming and laborious to contact dealers via the telephone or instant message, and dealers usually placed short expiration times on the quotes they provided. Given these constraints, it was not practical for investors to “shop around” to more than a few dealers at a time. Relatedly, investors in the USD SSA bond market would often engage with the same limited set of dealers repeatedly. In addition, seeking quotes from too many dealers increased the number of market-makers that knew of the investor's interest in a given bond. Such visibility into order flow and the demand for these bonds increased the chance of “front-running” or other abusive behaviors.

134. The OTC market in SSA bonds is more opaque than many other OTC bond markets, such as corporate bonds, because there is no post-trade price transparency. Indeed, there is often no transparency into trading volumes or prices other than with respect to the initial issuance of the bonds. Unlike many different markets, in SSA bonds there is limited ability to purchase secondary market trading information. This is also significant because it provides asymmetry of information between the dealers and the customers, a situation made worse when firms engage in collusive behavior.

135. The need for investors to transact with dealers and reveal information surrounding the trade generated a steady flow of market information for Defendants, including a wealth of investor-specific information, such as which bonds an investor held and in what quantity, whether it was an ongoing buyer or seller of certain bonds, and the price levels at which it had traded or was seeking to trade. The market information dealers collected through the customer

inquiry process was a critical component in dealers' analysis of the market. The information was proprietary, confidential, and extremely valuable. In a competitive market, where dealers actually competed against each other, no dealer would forfeit its competitive advantage by disclosing such sensitive information to another dealer.

136. Apart from their activity as market makers, dealers also traded SSA bonds with other dealers. Interdealer trades were matched by third parties known as interdealer brokers ("IDBs"). Dealers submitted bid and offer prices to IDBs, which then published those quotes on their various trading platforms, which traders could view from their desks on screens provided by each IDB, or in an aggregated feed on their own in-house screens. The screens showed live, executable prices, allowing a dealer to immediately enter into a trade at the quoted price without negotiation. When a bond traded at a specific price, the price would flash on the screen. Dealers watched these screens closely, and they treated the prices on IDB screens as a guide for where to set bond prices in response to investor inquiries.

137. Unlike in dealer-to-client transactions, where dealers knew the identity of their investor counterparties from the initial requests for quotes, trading through IDBs was supposed to be anonymous. When trading with other dealers, the parties' identities were concealed from one another, even after trade execution.

138. During the Class Period, the dominant IDBs in the SSA bond market included BGC Partners, GFI Group, ICAP, and Tullett Prebon ("Tullett"), among others.

D. How SSA Bond Prices Were Quoted

139. Dealers typically quoted prices for SSA bonds in basis points as a spread above the yield of the relevant benchmark U.S. Treasury bonds with a similar maturity, with one basis

point equal to 1/100th of a percentage point.²⁸ Dealers provided both “bid” and “offer” quotes. The “bid” was the spread above Treasury bonds at which a dealer was willing to buy an SSA bond. The “offer” was the spread above Treasury bonds at which a dealer was willing to sell an SSA bond. A dealer “got hit” when someone accepted a dealer’s bid, and “got lifted” when someone accepted a dealer’s offer.

140. Investors could request either a one-way quote or a two-way quote from dealers. A one-way quote was either a bid or an offer, depending on the direction of the trade the investor sought to make. The difference, or margin, between the bid and offer was the “bid-offer spread.” A two-way quote consisted of both the bid and offer for a given bond. A two-way quote was known as the “market” on a bond.

141. SSA bond yields are inversely related to bond prices: The higher the spread over Treasury bond yields, the *lower* the price of an SSA bond, and vice versa. Investors sought to purchase SSA bonds at the highest available offer (*i.e.*, the highest available yield, and thus the lowest price) and to sell them at the lowest available bid (*i.e.*, the lowest available yield, and thus the highest price). As a consequence, bids were higher than asks for SSA bonds, unlike with instruments for which quotes are provided in terms of dollar prices (rather than yields or yield spreads).

142. For example, if 30-year U.S. Treasury bonds had a yield of 3.00%, and an SSA bond with a similar maturity last traded at a yield of 3.35%, then the SSA bond was last traded at a spread of 35 basis points of yield above U.S. Treasury bonds. Asked to provide a one-way quote for such an SSA bond, a dealer may provide an investor with a bid of 36 or “+36,” or an

²⁸ SSA bonds that had only a short period of time left to maturity would often be traded using the London Interbank Offered Rate (LIBOR) as a benchmark. For instance, if a certain bond had only six months left to maturity, there would be no prevailing underlying U.S. Treasury benchmark for such a short period, hence the bond’s price would be referenced against, say, the prevailing three-month U.S. dollar LIBOR rate.

offer of 34 or “+34.” Asked to provide a two-way quote, the dealer would provide a “market” of “36/34.”

ALLEGATIONS REGARDING THE CONSPIRACY

143. The fundamental agreement among Defendants was that they would not compete against each other in the market for USD SSA bonds. They agreed instead to cooperate to maximize their own profits at the expense of their customers, many of whom they shared in common (and for whose business they were supposed to be competing). Defendants’ overarching objective was to ensure that cartel members could transact with their investor clients at prices that were more favorable for the conspiring dealers—and thus worse for their customers—than would have been achieved in the absence of the collusion.

I. THE PRIMARY PLAYERS IDENTIFIED TO DATE

144. From information collected to date, Defendants’ conspiracy was carried out by *at least* the following individuals (and likely more), each of whom had significant responsibilities for the USD SSA bond trading desk at their respective institutions:

145. **Hiren Gudka:** Gudka worked at Bank of America from December 2001 to May 2009, and at Deutsche Bank from July 2009 to April 2014. In July 2014, Gudka returned to Bank of America, where he remained until approximately November 2015;

146. **Shailen Pau:** Pau, [REDACTED] began his career at RBC, where he traded bonds from May 1999 to May 2009. In July 2009, Pau moved to Crédit Agricole, which he left in March 2010. Around June 2010, Pau joined Credit Suisse, where he remained until February 2016;

147. **Amandeep Singh Manku:** Manku, [REDACTED]
[REDACTED] worked at HSBC from January 2002 to December 2009, when he left for

Bank of America. Manku traded SSA bonds at Bank of America from January 2010 to October 2012. In January 2013, Manku joined Crédit Agricole, where he worked until December 2015;

148. **Bhardeep Heer:** Heer worked at Nomura from January 2005 to March 2016;

149. **Gary McDonald:** McDonald worked at Bank of America from December 2001 to November 2007, [REDACTED] McDonald then worked at TD Bank from December 2007 to July 2010, and at Citi from September 2010 to March 2016;

150. [REDACTED]

[REDACTED]

151. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

152. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

153. [REDACTED]

[REDACTED]

[REDACTED]

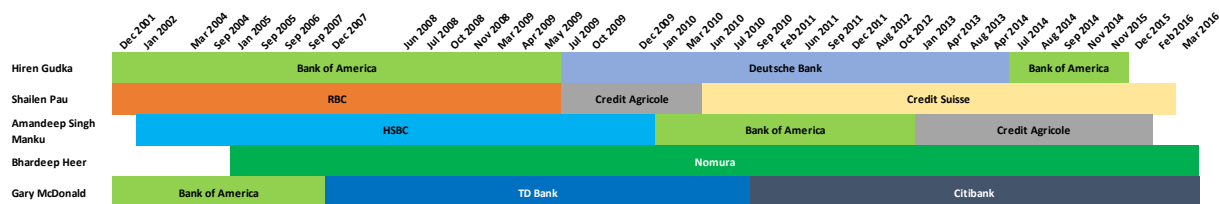
154. [REDACTED]

155. [REDACTED]

[REDACTED]

156. [REDACTED]

157. The chart below depicts the approximate dates that various cartel participants worked at different Dealer Defendants.



158. [REDACTED]

That conspiracy clearly did not come into existence overnight. On such facts, it is reasonable to infer that the conspiracy was in place as early as January 1, 2009, when at least nine of the individual cartel members were employed on the USD SSA trading desks of Defendant Dealers: Hiren Gudka [REDACTED] were working at Bank of America; Shailen Pau was working at RBC; Amandeep Manku was working at HSBC; Bhardeep Heer was working at Nomura; Gary McDonald was working at TD Bank; [REDACTED] was working at BNP Paribas; [REDACTED] was working at Nomura; and [REDACTED] was working at Barclays.

II. DEFENDANTS AGREED NOT TO COMPETE IN THE MARKET FOR SSA BONDS

159. As noted, Defendants agreed that they would not compete against each other for the sale of USD SSA bonds to customers. [REDACTED]

[REDACTED]

160. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

161. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

162.

[REDACTED]

163. Though the conspiratorial evidence amassed to date could be categorized in any number of ways, and though it all shows the same thing (a horizontal conspiracy not to compete), this [REDACTED]

[REDACTED]

A.

[REDACTED]

164.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

165. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

166. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

167. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

168. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

169. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

170.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

171.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

172.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

B.

173.

[REDACTED]

174.

[REDACTED]

175. [REDACTED] Plaintiff Alaska Department of Revenue, whose trading records show that, it purchased \$10 million in EXPT bonds maturing in 2016, on

November 2, 2011, [REDACTED] at a yield of 135 basis points above Treasuries.²⁹

176. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

177. [REDACTED] Plaintiff Alaska Department of Revenue, whose trading records show that it purchased another \$15 million in EXPT bonds maturing in 2016, on November 2, 2011, [REDACTED] from Credit Suisse, at a yield of 135 basis points above Treasuries.³⁰

178. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

179. [REDACTED]

[REDACTED]

[REDACTED]

²⁹ Alaska Department of Revenue's trade tickers [REDACTED] are attached in Exhibit A.

³⁰ *See id.*

[REDACTED]

[REDACTED]

180. [REDACTED]

[REDACTED]

181. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

182. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

183. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

184. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

185. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

186. [REDACTED]

[REDACTED]

[REDACTED]

[illegible]

187. [REDACTED]

[REDACTED]

[REDACTED]

188.

[illegible]

189. [REDACTED]

³¹ BGC Partners was formed in 2004 as a spinoff of Cantor Fitzgerald. However, many in the industry continued to refer to BGC's legacy Cantor Fitzgerald business as "Cantor."

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

190. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

191. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

192. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

193. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

194. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

195. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

196. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

197. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

198. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

199. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

C. [REDACTED]

200. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

201. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

202. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

D. [REDACTED]

203. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

204.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

205.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

206. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

207. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

208.

[REDACTED]

209.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

210. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

211. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

212. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

213. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

214. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

E. [REDACTED]

215. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

216. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

217. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

32

32 [REDACTED]

[REDACTED]

218.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

219.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

220.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

III. DEFENDANTS DIRECTLY FIXED THE PRICE OF USD SSA BONDS

221. As a corollary to their overarching agreement not to compete in the USD SSA bond market, Defendants also agreed to collaborate to fix prices in the USD SSA bond market in more explicit ways. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

222. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

223. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

224. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

225. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

226. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

227. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

228. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

229.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

230.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

231.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

232. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

233. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

234. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

235. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

236. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

237. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

238. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

239. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

240. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

241. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

242. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

243. [REDACTED]

[REDACTED]

[REDACTED]

244. [REDACTED]

245. [REDACTED]

246. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

247. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

248. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

249. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

250. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

251. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

252. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

253. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

254. [REDACTED]

[REDACTED]

[REDACTED]

255. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

256. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

257. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

258. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

259. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

260. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

261. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

262. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

263. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

The diagram consists of a vertical line on the left side. From this line, several horizontal bars of varying lengths extend to the right. These bars are arranged in a staggered fashion, with some starting at the top and others further down. The bars represent different time periods or events along a timeline.

264.

[illegible]

265.

265. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

266. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

267. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

268. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

269. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

270. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

[REDACTED]

271. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

272. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

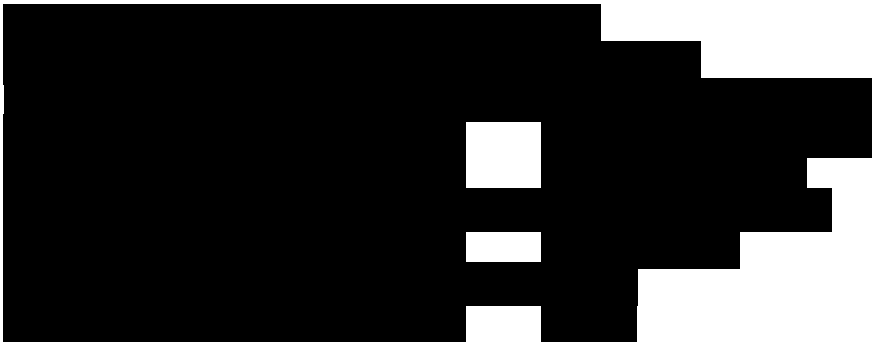
[REDACTED]

[REDACTED]

[REDACTED]

33 [REDACTED]

[REDACTED]



273. [REDACTED]

[REDACTED]

274. [REDACTED]

[REDACTED]

275. [REDACTED]

[REDACTED]

276. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

277. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

278. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

279. [REDACTED]

[REDACTED]

[REDACTED]

280. [REDACTED]

[REDACTED]

281. [REDACTED]

[REDACTED]

282.

[REDACTED]

283.

[REDACTED]

284.

[REDACTED]

285.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

286. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

287. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

IV. DEFENDANTS EXPLOITED SENSITIVE CUSTOMER INFORMATION

288. [REDACTED]

[REDACTED]

[REDACTED] In financial markets especially, that information is invaluable.

Indeed, investors seek to limit and control the flow of information about their intentions and

trading strategies, because they know that dealers can use their information to trade to the dealer's advantage. Knowledge about an investor's trading position, for example, allows a dealer to assess the investor's eagerness to trade. If a dealer learns information that shows a customer is especially eager to trade, the dealer can exploit that information by adjusting the price against the customer.

289. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

290. Illicit sharing of information among dealers can also thwart a customer's effort to trade on the basis of private information. For example, if an investor has accumulated a large inventory of \$100 million of a security, and then puts an order to purchase an additional \$100 million of the security, it is suggestive that the customer has some private information. If a dealer learns of how many bonds the customer holds (from a conspirator or otherwise), the dealer can raise the offer quote, thereby reducing the customer's ability to benefit from the trade.

291. For these and many other reasons, it is well-recognized in the financial literature that the improper sharing of information among dealers regarding customer inventories, trading positions, and strategies causes customers to receive worse terms of trade.

292. [REDACTED]

[REDACTED]

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[REDACTED]

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293. [REDACTED]

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294. [REDACTED]

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295. [REDACTED]

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296. [REDACTED]

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297. [REDACTED]

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298. [REDACTED]

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299. [REDACTED]

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300. [REDACTED]

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301. [REDACTED]

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305. [REDACTED]

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306. [REDACTED]

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307. [REDACTED]

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308. [REDACTED]

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309. [REDACTED]

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310. [REDACTED]

[REDACTED]

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311. [REDACTED]

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[REDACTED]

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312. [REDACTED]

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313. [REDACTED]

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314. [REDACTED]

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315. [REDACTED]

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316. [REDACTED]

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317. [REDACTED]

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[REDACTED]

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[REDACTED]

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318. [REDACTED]

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319. [REDACTED]

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[REDACTED]

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320.

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321.

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322.

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323.

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324.

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[REDACTED]

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325. [REDACTED]

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326. [REDACTED]

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327.

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[REDACTED]

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328.

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329.

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330.

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[REDACTED]

331. [REDACTED]

[REDACTED]

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[REDACTED]

332. [REDACTED]

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[REDACTED]

[REDACTED]

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333. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

334. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

335. [REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

336. [REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

337. [REDACTED]

[REDACTED]

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[REDACTED]

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[REDACTED]

[REDACTED]

338. [REDACTED]

[REDACTED]

[REDACTED]

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339. [REDACTED]

[REDACTED]

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[REDACTED]

340. [REDACTED]

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[REDACTED]

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341. [REDACTED]

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[REDACTED]

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[REDACTED]

342. [REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

343. [REDACTED]

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344. [REDACTED]

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[REDACTED]

[REDACTED]

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345. [REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

346. [REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

347. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

348. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

349. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

350. [REDACTED] February 7, 2012, Plaintiff Alaska Department of Revenue bought \$360,000 of the new Canada Government bond from co-conspirator HSBC. Trading records show that Plaintiff Alaska Permanent Fund Corporation also bought \$10 million of the new Canada Government bond from Bank of America that day.

351. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

352. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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353.

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355.

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[REDACTED]

[REDACTED]

356. [REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

357. [REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

358. [REDACTED]

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[REDACTED]

[REDACTED]

359.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

360.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

361.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

V. **THE CONSPIRACY OPERATED UNCEASINGLY, INFECTING ALL OF THE DEFENDANTS' SSA TRANSACTIONS AND THE SSA MARKET**

362. In many antitrust conspiracy cases, the means by which the cartel members conspired are shrouded in secrecy, and plaintiffs justifiably must rely on inferences or suggestions about where cartel members may have had the “opportunity” to conspire.³⁴ Not here. [REDACTED]

[REDACTED]

363. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

364. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

³⁴ See, e.g., *In re Commodity Exch., Inc.*, 213 F. Supp. 3d 631, 661 (S.D.N.Y. 2016) (explaining that defendants’ misconduct occurs in secret in “many and maybe even most antitrust conspiracy cases”) (internal parenthetical omitted).

365. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

366. [REDACTED]

[REDACTED]

[REDACTED] It is only recently, starting in late 2013, that the Dealer Defendants (and other Wall Street banks) could no longer ignore the degree to which traders had used these types of chat rooms to rig in multiple financial markets. Governmental regulators had discovered multiple cartels, such as in the foreign exchange market, which relied heavily on these chatrooms. Finally, starting in late 2013, Deutsche Bank,³⁵ UBS,³⁶ Barclays,³⁷ and Citi,³⁸ began to impose increased restrictions on traders using chat rooms (especially with other banks).

367. [REDACTED]

[REDACTED]

[REDACTED]

³⁵ Gavin Finch & Nicholas Comfort, *JPMorgan, Deutsche Bank Expand Multitrader Chat Room Bans*, BLOOMBERG LAW (Dec. 17, 2013), <https://www.bloomberg.com/news/articles/2013-12-17/jpmorgan-said-to-near-ban-on-traders-using-multi-bank-chat-rooms>.

³⁶ *Trader Chat Rooms Part of Bigger Problem*, FIN. POST (Nov. 28, 2013), <http://business.financialpost.com/investing/trader-chat-rooms-part-of-bigger-problem>.

³⁷ Daniel Schafer, Alice Ross & Philip Stafford, *Banks Ban Traders From Group Chat Rooms*, FIN. TIMES (Nov. 21, 2013), <https://www.ft.com/content/68c26cf6-52d5-11e3-a73e-00144feabdc0>.

³⁸ *Id.*

[REDACTED]

[REDACTED]

[REDACTED]

368. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

369. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

370. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

371.

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VI. **GOVERNMENT INVESTIGATIONS INTO DEFENDANTS' MANIPULATION OF THE SSA BOND MARKET**

375. Given the extensive evidence that exists of Defendants' collusion, it is unsurprising that they now face serious governmental investigations into their misconduct. These investigations were spearheaded by the U.S. Department of Justice ("DOJ"), based on information it received, and were joined by regulators from the United Kingdom and the European Commission and others.

376. Beginning in late 2015, as a consequence of their participation in the conspiracy, all or nearly all of the key participants in the cartel were removed from their positions on the SSA bond trading desks at the Dealer Defendants:

377. In late 2015, Bank of America suspended or terminated Gudka. Gudka has been inactive on the FCA register for traders since the start of November 2015.

378. In late 2015 or early 2016, Credit Suisse suspended or terminated Pau. Pau has been inactive on the FCA register for traders since February 2016.

379. In late 2015 or early 2016, Cr dit Agricole suspended or terminated Manku. Manku has been inactive on the FCA register for traders since the start of December 2015.

380. In late 2015 or early 2016, Nomura suspended Heer, who was removed from Nomura's trading desk and moved to a back-office role indefinitely. He has been inactive on the FCA register for traders since March 2016.³⁹

381. As discussed above, in December 2015 there were the first reports that the DOJ had launched an investigation into collusion in the SSA market.⁴⁰

382. A month later, on January 6, 2016, the *Financial Times* and *International Financing Review* confirmed the DOJ's probe, the latter indicating that the DOJ was looking at "possible manipulation of bond prices."⁴¹

383. According to the *International Financing Review* report, the DOJ was "investigating allegations that SSA traders at different banks agreed [on] prices and shared information on certain US dollar bonds in chat rooms they established for the purpose."⁴² According to a *Bloomberg* report, "Prosecutors have obtained transcripts of online chat room conversations indicating possible misconduct and have contacted banks, asking them to delve further into the behavior."⁴³ The DOJ reportedly had sent information requests to Bank of America, Crédit Agricole, Credit Suisse, and Nomura, among others.⁴⁴

³⁹ [REDACTED] and Gary McDonald have both been inactive on the FCA register for traders since March 2016.

⁴⁰ David McLaughlin & Tom Schoenberg, *U.S. Said to Probe Possible Rigging in Agency Bond Market*, BLOOMBERG (Dec. 9, 2015), <http://www.bloomberg.com/news/articles/2015-12-09/u-s-said-to-probe-possible-rigging-in-agency-bond-market>.

⁴¹ Abhinav Ramnarayan & Helene Durand, *EXCLUSIVE – DoJ Investigates Bond Traders Over Market-Rigging*, INT'L FIN. REV. (Jan. 6, 2016), www.ifre.com/exclusive-doj-investigates-bond-traders-over-market-rigging/21230385.fullarticle.

⁴² *Id.*

⁴³ David McLaughlin & Tom Schoenberg, *U.S. Said to Probe Possible Rigging in Agency Bond Market*, BLOOMBERG (Dec. 9, 2015), <http://www.bloomberg.com/news/articles/2015-12-09/u-s-said-to-probe-possible-rigging-in-agency-bond-market>.

⁴⁴ Craig McGlashan, Owen Sanderson, Ralph Sinclair & Toby Fildes, *Scandal Rocks SSA Market*, GLOBAL CAP. (Jan. 7, 2016), www.globalcapital.com/article/vydmn22frhms/trading-scandal-rocks-ssa-market.

384. On January 20, 2016, *Bloomberg* reported that the U.K. Financial Conduct Authority, which previously had been assisting the DOJ, had started its own investigation into collusion in the SSA market.⁴⁵ On February 9, 2016, the *Financial Times* reported that in addition to the DOJ and Financial Conduct Authority, the European Commission had also opened a cartel investigation into possible collusion in the SSA market.⁴⁶

385. Citigroup has noted in its filings that its SSA bond trading activities were under investigation.⁴⁷ Credit Suisse has also “received information requests from regulators about the agency bond market.”⁴⁸ Similarly, Cr dit Agricole disclosed in its annual financial report that “[s]everal regulators have demanded information” on its SSA bonds business, and that Cr dit Agricole has been cooperating with the authorities.⁴⁹

386. In February 2017, *Bloomberg* reported that the DOJ and FCA investigations “are escalating as authorities seek to interview traders.”⁵⁰ According to Bloomberg, U.S. prosecutors “obtained transcripts of online chat-room conversations indicating possible misconduct” and are pressing forward with a criminal probe.⁵¹ Later, in October 2017, Bloomberg reported that the

⁴⁵ Suzi Ring & Tom Schoenberg, *U.K. Said to Open Probe Into Rigging of Agency-Bonds Market*, BLOOMBERG (Jan. 20, 2016), <https://www.bloomberg.com/news/articles/2016-01-20/agency-bond-rigging-probe-said-to-expand-as-u-k-opens-inquiry-ijmri0ov>.

⁴⁶ Jim Brunsten, *EU Probes Suspected Rigging of \$1.5tn Debt Market*, FIN. TIMES (Feb. 9, 2016), <https://next.ft.com/content/04befd8a-cf35-11e5-92a1-c5e23ef99c77>.

⁴⁷ Citigroup, Inc., *Form 10-K* at 296 (2016) (“Government and regulatory agencies in the U.S. and in other jurisdictions are conducting investigations or making inquiries regarding Citigroup’s sales and trading activities in connection with sovereign securities. Citigroup is fully cooperating with these investigations and inquiries.”).

⁴⁸ Suzi Ring & Tom Schoenberg, *Agency Bond Traders Said to Face Questions in Rigging Probe*, BLOOMBERG (Feb. 1, 2017), <https://www.bloomberg.com/news/articles/2017-02-01/agency-bond-traders-said-to-face-questions-in-rigging-probe-iy8sg38>.

⁴⁹ Cr dit Agricole, *Annual Financial Report 2015: Registration Document* at 397 (2015).

⁵⁰ Suzi Ring & Tom Schoenberg, *Agency Bond Traders Said to Face Questions in Rigging Probe*, BLOOMBERG (Feb. 1, 2017), <https://www.bloomberg.com/news/articles/2017-02-01/agency-bond-traders-said-to-face-questions-in-rigging-probe-iy8sg38>.

⁵¹ *Id.*

FCA had “closed” its “two-year investigation” by sending non-public letters to four “traders at the center of the probe,” and that the FCA had provided “[n]o details on why the probe had been closed.”⁵²

VII. DEFENDANTS’ CARTEL WAS DIRECTED AT INVESTORS IN THE UNITED STATES AND IN NEW YORK

A. Defendants’ Conspiracy Deliberately Targeted the United States and New York

387. Defendants deliberately directed their conspiracy to the United States. They did this in part because U.S.-based investors are most likely to have U.S. dollars available to buy, hold, and trade USD SSA bonds. Defendants continuously and deliberately exploited the U.S. market for USD SSA bonds and U.S. investors. Defendants also knew that the brunt of the harm caused by their scheme would be felt by investors in the United States.

388. Individual investors, pension funds, mutual funds, and domestic banks are among the entities that purchase USD SSA bonds (or sometimes colloquially called “Yankee bonds”) within the United States. These entities are often mandated to invest a minimum percentage of assets under management in U.S. dollar-denominated assets, such as USD SSA bonds. USD SSA bonds are appealing to U.S.-based investors because they offer a unique combination of high credit quality, frequent backing by sovereigns, and higher yields than U.S. Treasuries. This is a primary reason that USD SSA bonds are typically issued in a format that allows for their immediate, or close to immediate, acquisition by U.S. investors.

389. Within the United States, Defendants directed their conspiracy in particular to New York, which is where many of Defendants’ customers, offices, and key employees were

⁵² Suzi Ring, *Agency Bond-Rigging Probe is Said to Be Dropped by Britain’s FCA*, BLOOMBERG (Oct. 31, 2017), <https://www.bloomberg.com/news/articles/2017-10-31/agency-bond-rigging-probe-is-said-to-be-dropped-by-britain-s-fca>.

located and where Defendants often attended industry conferences and focused their marketing efforts for USD SSA bonds. Defendants extensively promoted USD SSA bonds to investors in the United States and in New York in several ways, soliciting business in order to capitalize on commissions and boost profits.

390. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

391. *Second*, it was routine practice during the Class Period for the Dealer Defendants to communicate with U.S.-based investors through, among other things, a daily call during which SSA bond traders would give information to U.S. investors related to the performance of the SSA bond market. A foreign-based trader might give this information directly to U.S.-based customers, or the trader might relay the information through a U.S.-based trader that handles any bond inquiries that come during post-trading hours. This information is then distributed by U.S. salespeople to their U.S. customers. In this way, U.S.-based investors are kept up-to-date about the USD SSA bond market and can also use this as an opportunity to initiate trades.

392.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

393.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

394.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

143

c. The salesperson or trader asked one of the Dealer Defendants' London-based SSA bond traders for the price(s).

d. Dealer Defendants' London-based SSA bond trader gave the U.S.-based salesperson or trader the price(s). The London-based traders and entities priced the trades, approved the trades, and had the power to cancel trades.

e. The U.S.-based salesperson or trader conveyed the price(s) to the U.S.-based investor.

f. The U.S.-based investor made the decision to buy or sell and relayed that decision to the U.S.-based salesperson or trader.

g. The U.S.-based salesperson or trader relayed the U.S. investor's decision to the London-based trader.

h. The USD SSA bond trade was executed in the United States, and either the USD SSA bond or the sale proceeds were delivered to the investor in the United States.

397. During the Class Period, each Defendant engaged in the conspiracy at one or more points in the chain.

398. These essential steps in furtherance of the conspiracy often occurred in New York. The Dealer Defendants' London-based SSA bond desks and traders were constantly receiving inquiries from and providing prices to traders and salespeople based in the United States, including in New York. [REDACTED]

[REDACTED]
[REDACTED] Any price for an SSA bond had to come through Defendants' London desks and there was a constant flow of market information to

and from Defendants' U.S.- and New York-based salespeople and traders, and the London SSA desk.

399. While discovery will undoubtedly reveal thousands of additional relevant communications between Defendants' London-based SSA bond traders and U.S. personnel, [REDACTED]

[REDACTED]

400. Defendants' London-based SSA bond traders would often report directly to managers in New York. [REDACTED]

[REDACTED]

C. **Defendants Transacted With U.S. and New York Investors, Shared Confidential Information on U.S. Investors, and Engaged in U.S.- and New York-Linked Activities**

401. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

402. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

403. [REDACTED]

[REDACTED]

[REDACTED]

1. Bank of America

404. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

405. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

406. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

407. [REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

408. [REDACTED]

[REDACTED]

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2. Barclays

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3. BNP Paribas

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4. Citi

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5. Crédit Agricole

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6. Credit Suisse

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7. Deutsche Bank

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473. [REDACTED]

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8. HSBC

479. [REDACTED]

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480. [REDACTED]

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483. [REDACTED]

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484. [REDACTED]

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[REDACTED]

9. Nomura

485. [REDACTED]

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[REDACTED]

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486. [REDACTED]

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10. RBC

487. [REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

11. TD Bank

488. [REDACTED]

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492. [REDACTED]

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VIII. THE ACADEMIC LITERATURE CONFIRMS THAT A REDUCTION IN DEALER COMPETITION HARMS INVESTORS

493. Defendants' collusion harmed Class members on USD SSA bond transactions during the Class Period. As defined below, the Class is composed of those investors, including pension funds, state funds, university endowment funds, hedge funds, insurance companies, corporate treasuries, fiduciary and depository institutions, small banks, and money managers, who executed USD SSA bond trades with Defendants and their co-conspirators during the Class Period, within the flow of U.S. commerce.⁵³

494. By colluding, Defendants were able to transact with their investor clients at prices that were more favorable for the conspiring dealer—and thus worse for the customer—than would have been achieved in the absence of the collusion. That was, after all, the reason they conspired. Defendants unlawfully conspired day after day because it allowed them to make more money from customer transactions than they could have made without colluding. ■

■

■

495. The nation's economy relies on free market competition because it is a basic premise of economics that competition results in better prices and higher product quality for

⁵³ Although Defendants' cartel undoubtedly impacted the entire USD SSA bond market by fundamentally disrupting competition in the market overall, this case is limited to those investors who had the misfortune to trade directly with the cartel members—that is, the Dealer Defendants.

consumers.⁵⁴ This basic economic premise holds especially true in financial markets. It is well settled that in financial markets, like the USD SSA bond market, consumers suffer harm in the form of worse prices when dealers do not compete.

496. Defendants' collusion harmed their customers because it greatly diminished the amount of dealer competition in the market. That is, Defendants' conspiracy significantly reduced how many trading desks were competing in the market for customer business. Rather than operating as distinct dealers in the market and vigorously competing for customer business, as they were expected to do, the cartel members effectively operated as a single trading desk that scrupulously avoided competition. Dealer competition in the USD SSA bond market was significantly suppressed as a result.

497. The academic literature has long established that more competition among dealers reduces spreads and prices paid by investors in financial markets. Conversely, less competition among dealers widens spreads and prices. As Professor Darrell Duffie, who is one of the world's leading experts on OTC market structure, explained as part of the Thirteenth Baffi Lecture presented at the Banca d'Italia in Rome, on September 15, 2017: "Well-established economic theory implies that markets are more efficient and investors receive better pricing when more market participants compete for trade at the same venue. Most obviously, from the viewpoint of a quote seeker, the best price from among a small set of bidders is not as attractive as the best price available from an enlarged set of bidders."⁵⁵

⁵⁴ See *N. Pac. Ry. Co. v. U.S.*, 356 U.S. 1, 4 (1958) ("The Sherman Act was designed to be a comprehensive charter of economic liberty aimed at preserving free and unfettered competition as the rule of trade. It rests on the premise that the unrestrained interaction of competitive forces will yield the best allocation of our economic resources, the lowest prices, the highest quality and the greatest material progress, while at the same time providing an environment conducive to the preservation of our democratic political and social institutions.").

⁵⁵ Darrell Duffie, *Bank Debt Overhang and Financial Market Liquidity*, THIRTEENTH PAOLO BAFFI LECTURE, 67 (2017) ("Baffi Lecture"). The Bank of Italy's Paolo Baffi Lecture is one of the most prestigious

498. Professor Duffie highlighted, for example, a study of bond trading platforms by Terry Hendershott and Ananth Madhavan which found empirical support for the theoretically anticipated relationship between the number of dealers providing quotes on a corporate bond trading platform and the expected cost to the quote requestor (*i.e.*, the investor), controlling for other factors. Their analysis concluded that expected trading costs for investors declines rapidly with the number of dealers providing quotes, as displayed in the following figure:⁵⁶

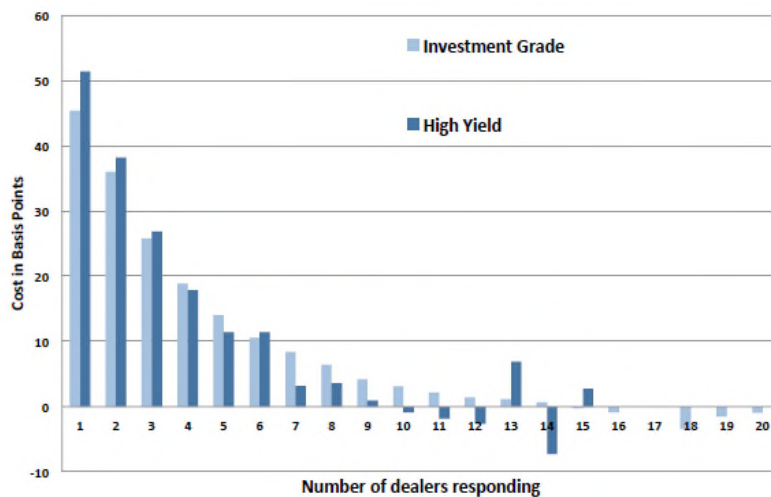


Figure 4.2.2: How transaction costs vary with the number of dealers responding to a request for quotes. Source: [Hendershott and Madhavan \(2015\)](#). The figure shows costs in basis points of notional amount, by the number of dealer responses in all electronic auctions on Market Axess in the sample with at least one response, broken down for investment-grade (IG) and high-yield (HY) bonds. Data are from January 2010 through April 2011, excluding all interdealer trades.

money and finance lecture series in the world. The Baffi Lecture is devoted to promoting scholarly writings that advance theoretical and applied analysis in the field of economics. The lecturers, selected by a committee of distinguished economists and civil servants, are preeminent scholars and leaders in their field that offer original contributions to a wide variety of issues related to money and finance.

⁵⁶ Terrence Hendershott and Ananth Madhavan, *Click or Call? Auction Versus Search in the Over-the-Counter Market*, 50 J. FIN. 419, 437 (2015). The authors document that this decline in trading costs as the number of responding dealers increase remains statistically strong even after controlling for differences in bond and trade characteristics (Table VIII at 442). The authors also observe: “Dealers in quote-driven systems face adverse selection because their binding bids and offers provide free options to the market. Adverse selection is more severe in thinly traded securities where it is costly to continuously monitor quotes to ensure they are not stale. There is also the potential for tacit collusion among dealers who observe each other’s quotes.” *Id.* at 445.

499. Note how this figure demonstrates that costs decrease every time an additional dealer responds to a request for quotes, which illustrates that removing even a single dealer from a market is expected to reduce competition and increase prices. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁵⁷

500. Numerous additional studies have shown how increased competition among dealers reduces transaction costs for bond market participants. In a study of corporate bond transactions, Anthony Saunders, Anand Srinivasan, and Ingo Walter found that when more dealers responded to a request for quotes on a transaction, the resulting quotes were more competitive.⁵⁸ Specifically, the authors found that the difference between the winning bid and the second-best bid was smaller when more dealers competed for the transaction.⁵⁹ Here, where Plaintiffs and other Class members tried to take advantage of such phenomenon, they were effectively thwarted in doing so. [REDACTED]

[REDACTED]

501. In yet another published research paper, Yee Cheng Loon and Ken Zhong demonstrated that the greater the number of dealers competing to make markets for credit default

⁵⁷ According to FCA records, for example, in December 2009, individual cartel members were working at least nine colluding banks, namely Bank of America [REDACTED] Barclays [REDACTED] BNP Paribas [REDACTED] Citibank [REDACTED] Crédit Agricole (Pau), Deutsche Bank (Gudka [REDACTED]), HSBC (Manku), Nomura (Heer [REDACTED]), and TD Bank (McDonald).

⁵⁸ Anthony Saunders, Anand Srinivasan & Ingo Walter, *Price Formation in the OTC Corporate Bond Markets: A Field Study of the Inter-Dealer Market*, 54 J. ECON. & BUS. 95, 111 (2002).

⁵⁹ *Id.* at 106 & tbl.6a. The authors analyzed a randomly selected sample of bond trades conducted by a major dealer in the OTC corporate bond market from January 1, 1997 to November 28, 1997. These trades were carried out as auctions, with telephone bids received from multiple dealers who were competing for the transaction; the data from the dealer book provides the names of all the bidding dealers, prices quoted by these dealers and the price of the winning bid. *Id.* at 98. The authors found that “an increase of one additional bidder reduces the price difference between the best and second best bids by 23.6%.” *Id.* at 102 & tbl.5.

swaps, the lower are the effective bid-ask spreads—and therefore the more favorable are the transaction prices—realized by customers for those swaps, again controlling for other factors.

As the authors concluded: “*Increased competition among dealers for order flow reduces bid-ask spreads and improves liquidity.*”⁶⁰ A wealth of academic literature has similarly concluded that competition among dealers reduces spreads paid by investors in OTC markets and otherwise.⁶¹

502. As Professor Duffie explained, when an OTC dealer perceives that an investor client lacks attractive outside options to obtain quotes, “the dealer can widen its bid-ask spread accordingly.”⁶² [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁶⁰ Yee Cheng Loon & Ken Zhong, *Does Dodd-Frank affect OTC transaction costs and liquidity? Evidence from the real-time CDS trade reports*, 119 J. FIN. ECON. 645, 651 (2016).

⁶¹ See, e.g., M. Tinic & Richard R. West, *Competition and the Pricing of Dealer Service in the Over-the-Counter Stock Market*, 7 J. FIN. & QUANTITATIVE ANALYSIS 1707, 1709 (1972) (“In brief, our principal conclusion is that increases in the amount of interdealer competition in this [OTC] market tend to reduce the price of dealer services (reduce spreads) and thus, tend to increase the marketability of issues.”); Yakov Amihud & Haim Mendelson, *Asset pricing and the Bid-Ask Spread*, 17 J. FIN. ECON. 223, 224 (1986) (noting that “the relative spread on stocks has been found to be negatively correlated with liquidity characteristics such as the trading volume, the number of shareholders, the number of market makers trading the stock and the stock price continuity”); SehaOleg Bondarenko, *Competing market makers, liquidity provision, and bid-ask spreads*, 4 J. FIN. MKTS 269, 273 (2001) (finding that “the bid-ask spreads resulting from non-cooperative but imperfect competition will usually be much narrower than those resulting from explicit collusion, in which market makers cooperate to fix prices”). In a study of the foreign exchange markets—which, like SSA bond markets, are also OTC markets where large financial institutions act as dealers—Carol Osler, Geir Bjornnes, and Neophytos Kathiziotis showed that transaction costs for customers in foreign exchange transactions are lower in multi-bank electronic platforms, where several dealers compete simultaneously to provide quotes in response to the customer’s request, than in single-bank platforms or in direct transactions with desks of individual dealers. See Carol Osler, Geir Bjornnes, and Neophytos Kathiziotis, *Bid-Ask Spreads in OTC Markets*, 33, tbl.3 (Brandeis Univ. Working Paper No. 102, 2016). The authors found that multi-bank platforms provide the lowest transaction costs—measured as the difference between the price paid by the consumer on a transaction and the interbank quote at the time of the transaction—because they facilitate more competition among dealers. *Id.* at 10-11.

⁶² Baffi Lecture, at 64.

[REDACTED] As the literature demonstrates, Defendants' conspiracy would be expected, theoretically and empirically, to impact prices paid by their customers across the board. This is confirmed by the analyses discussed in Section IX below.

503. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] In short, they used virtually all of the techniques that constitute *per se* unlawful "price-fixing." These techniques are *per se* unlawful because they are well known methods of artificially moving prices, which is precisely what Defendants accomplished here.

504. Defendants' ability to charge non-competitive prices to their customers by actively coordinating on certain transactions also had effects that extended beyond any individual transaction. For instance, it is well understood in the finance literature that market participants use information gained from recent trade history to update their beliefs regarding the value of a security, causing current prices to propagate into future trade prices.⁶³ As a result, the harm suffered by investors who traded with Defendants at an inflated price because of an instance of overt price-fixing was not isolated to the worse execution price paid by the customer in the single transaction itself. The artificially high price (if the customer purchased) or its artificially low sell

⁶³ See e.g., Joel Hasbrouck, *Measuring the Information Content of Stock Trades*, 1 J. FIN. 179, 179 (1991) ("Central to the analysis of market microstructure is the notion that in a market with asymmetrically informed agents, trades convey information and therefore cause a persistent impact on the security price.").

price (if the customer sold) also affected the prices at which the investor would engage in subsequent trades, because the price in the rigged transaction served as a reference point for the pricing of subsequent transactions.

505. Given that Defendants were dominant players in the overall USD SSA bond market, their acts of collusion served to reduce the number of bona fide competitors in the market and exacerbate the harm to competition. Defendants have been estimated to have been responsible for as much as 60% of the underwriting for primary issuances of USD SSA bonds. The market share of dealers trading in the secondary market is closely correlated with that of lead underwriters in the primary market, as the syndicate banks that underwrite bond issuances are typically among the most active traders of those bonds post-issuance. As a result of the opacity of this OTC market, Gudka, one of the cartel's ringleaders, was himself known to be one of the leading players in the market as a whole. He was known as "a big name" in SSA bond trading, and ran one of the largest SSA trading books in the market.⁶⁴ That is in part why Gudka's departure from Deutsche Bank to Bank of America in 2014 was deemed a "blow" to Deutsche Bank, which was deemed to have lost an "experienced" professional with "such strong client relationships."⁶⁵ The other defendant traders also commanded sizeable trading desks.

[REDACTED]

[REDACTED]

506. The power of Defendants was magnified by the conspiracy. [REDACTED]

[REDACTED]

⁶⁴ Craig McGlashan, Owen Sanderson & Toby Fildes, '*Forced competition*' to generate trading flow under fire for fomenting SSA scandal, GLOBAL CAP. (Jan. 7, 2016), <http://www.globalcapital.com/article/vz0phyg7g5jt/39forced-competition39-to-generate-trading-flow-under-fire-for-fomenting-ssa-scandal>.

⁶⁵ Helene Durand, *DB Departures Deal Blow to Flagging SSA Franchise*, REUTERS (Apr. 4, 2014), <http://www.reuters.com/article/bonds-public-sector/db-departures-deal-blow-to-flagging-ssa-franchise-idUSL5N0MV4BM20140404>.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Defendants' ability to exploit

this information was not limited to any specific transaction, but effectively gave them a permanent informational advantage over their customers. [REDACTED]

[REDACTED]

[REDACTED]

507. The calculation of Class member damages in this case will necessarily be informed by discovery and expert analysis. Well-known methods exist for estimating the extent to which prices are affected by collusion of the type that occurred here, and will be applicable in this case. For example, damages likely can be quantified by comparing the bid-ask spreads paid by Class members in the actual world (the world affected by the conspiracy) to the spreads paid on comparable instruments after the period of collusion ended, while controlling for other (non-collusive) factors which can also impact bid-ask spreads. The research literature on bonds and other OTC financial instruments provides guidance on other factors that can impact spreads and how to control for these factors in a statistical model so as to isolate the reduction in bid-ask spreads that occurred at the end of the collusion, thus isolating the impact of the collusion on the

transactions prices of SSA bonds.⁶⁶ As another example of analysis that could be applied on a class wide basis, the profit margins and spreads on similar types of bonds or investment vehicles in a competitive market with a similar number of dealers over a similar period could be used to establish a benchmark of what spreads and profit margins should look like. The analyses discussed in Section IX below, applied to the available public data, are examples of the types of studies that could be used at trial.

IX. ECONOMIC ANALYSES OF THE AVAILABLE DATA CONFIRM THAT THE ALLEGED CONSPIRACY IMPACTED CLASS MEMBERS' SSA BOND TRANSACTIONS

508. As discussed above, it is a well-established economic principle that when competition is reduced among dealers in financial products, investors who buy and sell those products suffer financial harm in the form of higher prices and wider spreads. There is every reason to believe this basic economic principle fully applies to the USD SSA bond market, because that market exhibits all of the salient characteristics of other markets that have been studied which have found that principle to apply. This means that Defendants' agreement not to compete with each other would be expected to cause class members to incur higher spreads on USD SSA bond transactions throughout the period of the conspiracy.

509. This conclusion can be tested by analyzing the available transactional data. Although the USD SSA bond market is relatively opaque, there is some data that can be examined to determine whether Defendants' alleged conspiracy impacted prices paid by

⁶⁶ See, e.g., Thomas Copeland & Dan Galai, *Information Effects on the Bid-Ask Spread*, 38 J. FIN. 1457, 1457-68 (1983); Richard Roll, *A Simple Implicit Measure of the Effective Bid-Ask Spread in an Efficient Market*, 39 J. FIN. 1127, 1127-35 (1994); Sugato Chakravarty & Asani Sarkar, *Trading Costs in Three U.S. Bond Markets*, 13 J. FIXED INCOME 39, 39-48 (2003); Hendrik Bessembinder, William Maxwell, & Kumar Venkataraman, *Market Transparency, Liquidity Externalities, and Institutional Trading Costs in Corporate Bonds*, 82 J. FIN. ECON. 251, 257-82 (2006); Amy K. Edwards, Lawrence E. Harris & Michael S. Piwowar, *Corporate Bond Market Transaction Costs and Transparency*, 62 J. FIN. 1421, 1426-49 (2007).

investors in the market. The best available data is from Bloomberg, which provides three data series tracking daily spread and yield data it classifies as “Supranational, Sub-Sovereign, and Agency (SSA).” This Bloomberg data does not allow for the identification of bids, offers, or final prices on an individual trade or quote level. But it does allow for analyses of market-wide pricing in the USD SSA bond market. The analyses discussed below included a diverse range of thousands of USD SSA bonds, and take into account over 1.8 million pricing data points.⁶⁷

510. The analyses described below were performed by three consulting economic experts for Plaintiffs, each of whom independently decided what tests to run. As discussed below, the various tests conducted on the publicly available data by these three consultants all reach the same conclusion: During the alleged conspiracy period, spreads suffered by USD SSA bond investors across the market were inflated in a way that is *not* explainable by legitimate, competitive forces but is instead consistent with the alleged conspiracy not to compete.

511. These analyses thus directly support the conclusion that Plaintiffs and members of the Class—Defendants’ counterparties—were systematically harmed by the conspiratorial removal of dealer competition from the USD SSA bond marketplace.

A. A Regression Model Finds a Statistically Significant “Collusion Indicator Variable” Associated With Higher Bid/Ask Spreads

512. Generally speaking, a regression model is an econometric tool for measuring how well one or more the tested variables perform in terms of predicting or explaining a given outcome. A regression model can be used to determine whether price changes observed in the real world can be explained solely by legitimate factors, such as contemporaneous changes to the

⁶⁷ The Bloomberg data was filtered by each expert for purposes of their own studies, with each trying to ensure the analyses were not skewed by, for instance, a lack of sufficient data points across time. Various filters were also employed to reduce noise in the data by eliminating, for example, bonds that had comparatively unique features, or certain SSA bonds these Defendants were unlikely to have traded in regularly. For instance, the studies typically attempted to exclude bonds with put or call options, or with a zero coupon rate.

wider economic environment. A regression model is thus one well-accepted method for determining whether an alleged antitrust conspiracy impacted purchasers and can also be used to estimate the amount of damages.⁶⁸

513. One of Plaintiffs' consultants performed a regression model of this type utilizing all three of the alternative ways Bloomberg reports on bid-ask spread for USD SSA bonds.⁶⁹ As described below, this model found statistically significant evidence that the alleged conspiracy did, in fact, cause USD SSA bond prices to be inflated on a market-wide basis.

514. Because a regression model includes variables that seek to account for legitimate drivers of price changes, it seeks to control for all the reasons prices might be changing *other than* the existence of a conspiracy. In this case, Plaintiffs' consultant used variables that were identified through a review of the empirical literature. For instance, a widely cited study by Amy Edwards (an economist at the SEC), Lawrence Harris (the SEC's former Chief Economist and a current Professor in Finance and Business Economics at the University of Southern California), and Michael Piwowar (a former commissioner of the SEC),⁷⁰ found that bid-ask spreads are driven by such factors as: (a) the default risk of the bond; (b) the coupon rate of the bond; (c) the time since issuance of the bond; (d) the time to maturity for the bond; (e) the issue size of the bond; (f) the total size of other issues outstanding from the same issuer; and (g) the inverse of the

⁶⁸ See, e.g., American Bar Association, *Econometrics: Legal, Practical, and Technical Issues* (2d. ed. 2005), at 305 ("Econometric and regression analyses are particularly useful in separating the impact of an alleged anticompetitive act on market outcomes (such as pricing) from the impact of other influences. That is, when correctly implemented, econometric techniques can isolate and measure the effect of a single explanatory factor on the economic outcomes that are relevant when estimating damages.").

⁶⁹ Bloomberg data on bid-ask spreads is frequently used in the finance research literature to study liquidity and the role of dealers in bond markets. This is true for each of the three alternative data series Bloomberg makes available.

⁷⁰ See Amy K. Edwards, Lawrence E. Harris, and Michael S. Piwowar, *Corporate bond market transaction costs and transparency*, *The Journal of Finance* 62.3, 1421-1451 (2007).

bond's price.⁷¹ These factors are consistent with what other studies have found to be important drivers of the bid-ask spread for bonds.⁷² These factors were thus incorporated into the model used for this study.

515. In addition to these legitimate factors, the model also includes a variable indicating whether or not the pricing information is being drawn from the core conspiracy period. The role of this "Collusion Indicator" is to detect if bid-ask spreads were higher (or lower) during the alleged core conspiracy period than before or after, after controlling for the factors identified above that can legitimately cause spreads to vary across bonds and over time. This approach—using an additional indicator variable to identify the possible impact of potentially collusive activity—is a standard technique that is commonly used in the academic literature.⁷³

516. [REDACTED]

[REDACTED] Thus, while it is as of yet unclear on which day the conspiracy began, it is reasonable to infer that the conspiracy was in place as early as January 1, 2009. For purposes of statistical comparisons,

⁷¹ Other drivers of the spreads for the bonds included in the Edwards et al. analysis are irrelevant to SSA bonds, such as the presence of call or put options. They were thus not used in this study.

⁷² See, e.g., Hendershott, Li, Livdan, and Schürhoff, *Relationship trading in OTC markets*, SSRN Working Paper (2017).

⁷³ See, e.g., Michael J. Doane, Luke Froeb, David Sibley & Brijesh Pinto, *Screening for Collusion as a Problem of Inference*, 2 OXFORD HANDBOOK OF INTERNATIONAL ANTITRUST ECONOMICS 523, 529-550 (2015); Marina Agranov & Leeat Yariv, *Collusion through communication in auctions*, GAMES & ECON. BEHAV. 93, 96-108 (2018).

then, the “Collusion Indicator” was essentially set to “no” before January 1, 2009, and to “yes” on and after.⁷⁴

517. On December 9, 2015, the first news reports came out that the DOJ had launched an investigation into collusion in the SSA market.⁷⁵ Around December 2015, then, Defendants knew the regulatory spotlight was shining on them, which undoubtedly cast a chilling effect on further collusion by the alleged conspirators. Thus, the “Collusion Indicator” variable was turned back to “no” (or, 0) for the period after December 10, 2015.

518. The regression analysis found that all the basic economic factors discussed in the academic literature as being drivers of bid-ask spreads for bonds were statistically related to the real-world bid-ask spreads for the USD SSA bonds studied here. The relationships were all statistically significant (that is, unlikely to have arisen simply due to the vagaries of chance in the data), no matter which of the three Bloomberg data series were used. Put another way, the regression analysis confirmed that, *e.g.*, a change in the time since issuance for a bond was meaningfully associated with a change in the bid-ask spread for that bond.

519. Critically, the Collusion Indicator was *also* found to be related to the actual spreads for the bonds. And it was related to a statistically significant degree—even at the 99-percent confidence level—across all three alternative Bloomberg data series. Moreover, the Collusion Indicator was *positively* associated with spreads, which indicates that the alleged

⁷⁴ For one of the alternative data series made available by Bloomberg, the data was only available with sufficient frequency after March 1, 2010, and thus the regression using that data series was only based on the change before and after December 10, 2015. The other tests used the changing Collusion Indicator as discussed above, as the two other alternative data series had data going back to January 1, 2004.

⁷⁵ David McLaughlin & Tom Schoenberg, *U.S. Said to Probe Possible Rigging in Agency Bond Market*, BLOOMBERG (Dec. 9, 2015), <http://www.bloomberg.com/news/articles/2015-12-09/u-s-said-to-probe-possible-rigging-in-agency-bond-market>.

presence of the conspiracy is associated with higher bid-ask spreads, while its comparative absence is associated with lower bid-ask spreads.

520. This result indicates that the bid-ask spreads for USD SSA bonds were higher during the core conspiracy period than they were either before or after, even after controlling for economic factors that can legitimately cause bid-ask spreads to vary over time and across the different bonds in the sample. This finding directly supports the conclusion that collusion by Defendants artificially inflated bid-ask spreads incurred by investors—and it indicates that this effect held market-wide and was not limited to isolated transactions. This statistical analysis of the actual data thus confirms the theoretical predication that a reduction in competition among USD SSA bond dealers systematically harmed investors who bought and sold USD SSA bonds during the period in which competition was artificially reduced.

521. The model already uses many economic variables to control for non-conspiratorial forces. Nonetheless, the consultant ran another test to exclude further the possibility that the Collusion Indicator was only picking up the lingering effects of the so-called European debt crisis. To do so, the statistical significance of the conspiracy variable was tested twice: from the start of the data set used through December 2013, then again from January 1, 2014 to December 10, 2015. The Collusion Indicator was found to be statistically significant, even at the 99-percent confidence level, even when the early and later parts of the conspiracy period were tested independently. This was again true no matter which of the three Bloomberg data series were used.

522. In sum, a regression model applied to the available *market-wide* data shows a Collusion Indicator variable having a statistically significant, positive impact on bid-ask spreads. This is true even after accounting for economic factors, including the European debt crisis.

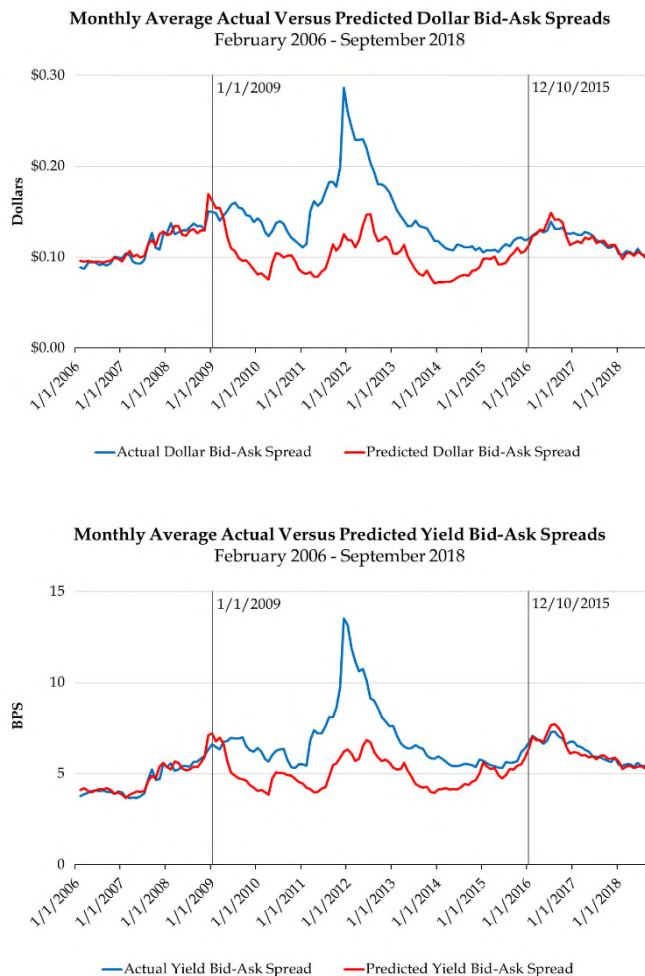
These results confirm at a high degree of statistical certainty that the alleged conspiracy had a broad impact and artificially widened spreads [REDACTED]

B. Other Regression Models Break Down During the Core Conspiracy Period

523. Plaintiffs' next set of analyses, performed by two other economic consultants each working independently from each other, also use USD SSA data from Bloomberg. For each of the tests set forth below, a regression model was created to try to predict pricing behavior, again using recognized, legitimate economic factors. Such predictive models were very good at predicting pricing behavior before 2009 and after 2015. But the same exact models performed significantly worse *during* that core conspiracy period of 2009 to 2015. Like the first regression models, such analyses also show that the conspiracy was raising spreads across the market.

524. *First*, a regression model was constructed that predicted what the bid-ask spreads "should" be. The results of the predictive model were then plotted across time, and are shown by the red lines in the two charts below.⁷⁶ Bloomberg data on the actual bid-ask spreads for the same bonds were pulled for the same period, and similarly plotted across time, as shown by the blue lines in the two charts below.

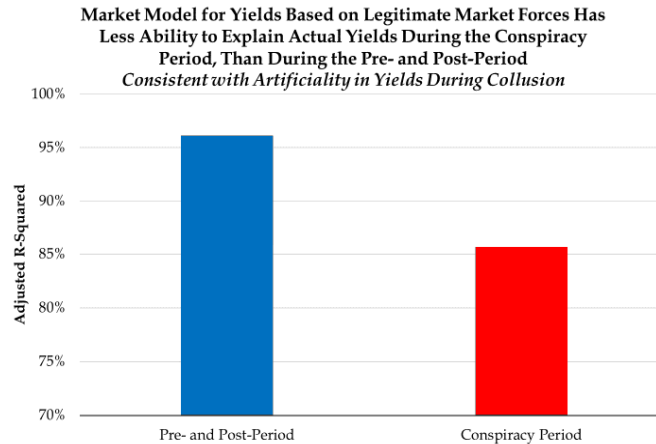
⁷⁶ The only difference between the two charts is that the first one studies the bid-ask spread in terms of dollar amounts, whereas the second one studies the bid-ask spread in terms of yields. In that chart, "bps" refers to basis points.



525. Whether the bid-ask spread is analyzed on a dollar or basis point perspective, the result is the same. The two lines are in sync from the beginning of the study to the end of 2008. They are in sync again after December 2015. For those before and after periods, the model accurately predicts the bid-ask spreads seen in the market-wide data for the real world. But during the conspiracy period, the red and blue lines diverge considerably, with actual bid-ask spreads being *always higher* during the core conspiracy period—and only during that period—than what can be explained by legitimate economic factors. This result indicates that, but-for the alleged collusion, bid-ask spreads would have been lower during the conspiracy absent collusion.

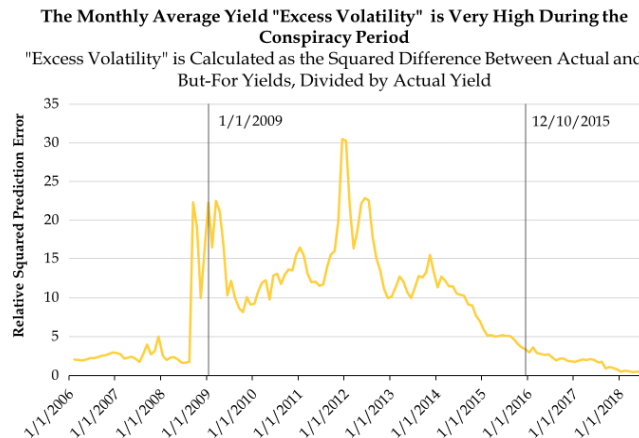
526. *Second*, another regression model was created, this time predicting the *yields* for USD SSA bonds, rather than their *bid-ask spreads*. The results of the predictive model were again compared to real-world yield data provided by Bloomberg. Specifically, Plaintiffs studied the adjusted R-squared for the yield model. This statistic measures how well the model explains variation, *i.e.*, how good the model's predictions fit with the actual real-world result. The higher the figure, the better the tested variable was at predicting the result. Here, this statistic is used to summarize how well the economics-only model is at predicting the real-world yields for the studied USD SSA bonds.

527. The test was broken up by time, to help determine whether the effects of the alleged conspiracy show up in the market-wide data. Once again, it does. The adjusted R-squared for the early and later years is very high, statistically speaking—the model can explain 96% of the movements in spreads during those years. In contrast, from around 2009 to around the end of 2015, the model performs significantly worse—it can only explain about 85% of the movements in spreads during those years. In other words, once again, the predicted and real-world results were very much in sync both before and after the alleged core conspiracy period. But the model was much worse at predicting actual outcomes during the period when the conspiracy was at its peak. The difference in performance—11 percentage points—is statistically significant.



528. *Third*, the consultant developed a regression model to predict and thus explain the *volatility* of yields across the thirteen-year period. The model’s predictions of how much yields should be changing from time to time (absent a conspiracy) were then compared to how much yields changed in the real world over the same periods. The “excess” volatility—that is, the amount of movement in bond yields that could not be explained through economic factors—was then plotted over time.

529. As seen in the following chart, the result is consistent with all the other studies. During the before and after periods, “excess” volatility was low, as indicated by a low and relatively flat line. The model was able to explain the actual volatility in yields with high precision during those time periods. But in the middle period when the conspiracy was at its peak, the yellow line is consistently higher, meaning there was more volatility in the real world than predicted. This is consistent with Defendants pushing yields artificially low when selling, then pressing yields artificially high when buying, causing yields to bounce around more than what the economic model can account for during the core conspiracy period.



530. *Fourth*, yet another consultant independently created yet another type of regression model. Here, the model attempted to predict spreads on and after January 1, 2009 for USD SSA bonds using a measure of the level of volatility in the USD SSA market and bid-ask spreads for sovereign (not SSA) bonds at the time. Volatility was chosen as a predictor variable because it was also mentioned in the academic literature as a driver of bid-ask spreads, in many markets.⁷⁷ And the bid-ask spreads for sovereign bonds were included because they are related instruments that could be expected to react to macroeconomic factors in similar ways, but were not alleged to be part of the conspiracy. These variables were all found to be related, to a statistically significant degree, to the bid-ask spread for the studied day on the studied bonds.

531. As with the other studies above, however, during the core conspiracy period the model performed worse at predicting actual bid-ask spreads. And it performed worse in the same direction—actual bid-ask spreads were consistently much *higher* than predicted during the core conspiracy period. After December 10, 2015, the gap was much narrower. This difference was statistically significant.

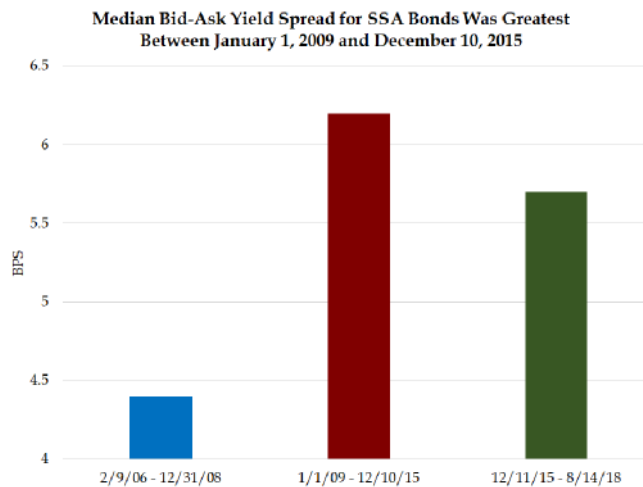
⁷⁷ See, e.g., George HK Wang & Jot Yau, *Trading Volume, Bid-Ask Spread, and Price Volatility in Futures Markets*, 20 J. FUTURES MKTS 943, 966 (2000).

532. In sum, all these regression models are able to predict many different aspects of USD SSA pricing behavior outside the conspiracy period. But the same models do significantly worse during the core collusion period. These analyses thus confirm the presence of a conspiracy impacting the market, causing prices to be artificial during those middle years.

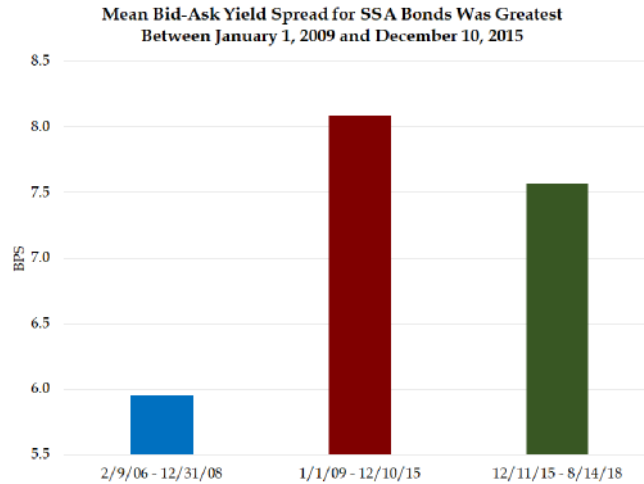
C. Bid-Ask Spreads and Yields Behaved Differently During the Core Conspiracy Period

1. Bid-ask spreads were inflated during the core conspiracy period

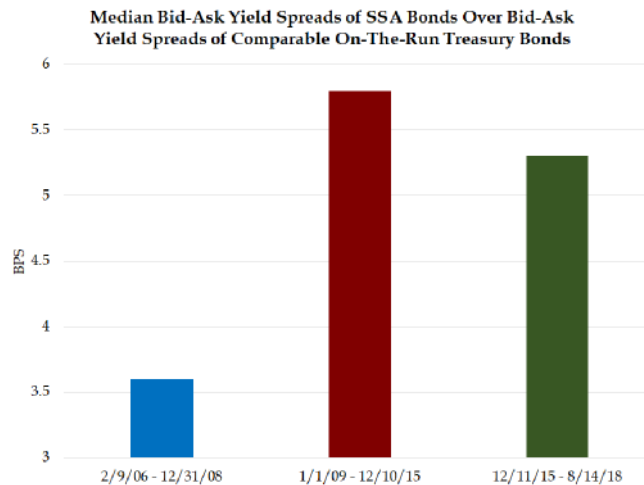
533. Another potential way of detecting the impact of a conspiracy is to conduct a before, during, and after analysis of prices across different time periods.⁷⁸ This can be done here by comparing pricing behavior during the core conspiracy period (2009 to 2015) to pricing behavior before and after that period. As seen in the following charts, both the mean and median bid-ask spreads for the studied USD SSA bonds were, in fact, higher during the core conspiracy period than during the periods before and after.



⁷⁸ See Rosa Abrantes-Metz, Luke Froeb, John Geweke & Christopher Taylor, *A variance screen for collusion*, 24 INT'L. J. INDUS. ORG. 467-86 (2006).

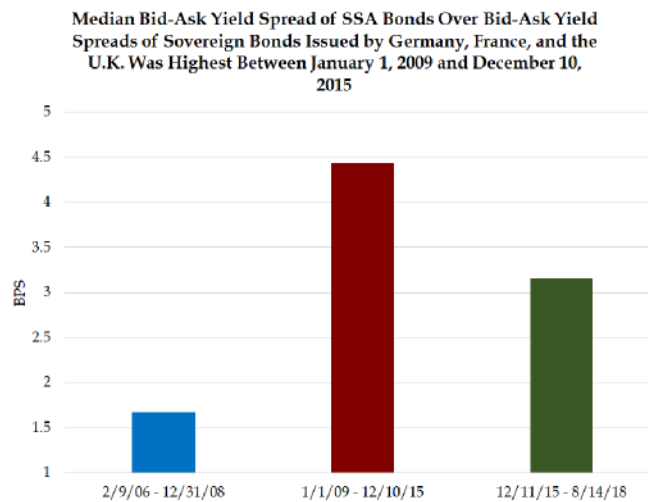


534. As one way of accounting for the possibility spreads were higher for reasons unrelated to the presence of a conspiracy, a comparison to U.S. Treasuries was also performed. The following chart shows that the gap between the bid-ask spreads for USD SSA bonds and the bid-ask spreads for U.S. Treasuries was *larger* during the core conspiracy period than the periods before and after periods. In other words, again, the bid-ask spreads for USD SSA bonds during the core conspiracy period were found to be too high, even after using a control variable.

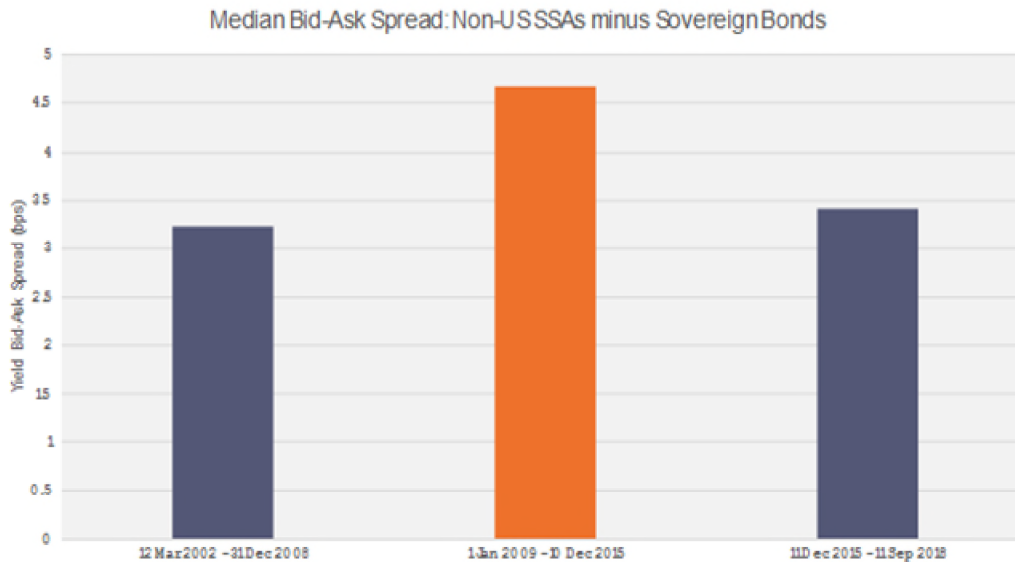


535. The bid-ask spreads for USD SSA bonds were also compared to those for sovereign debt issued by Germany, France, and the United Kingdom. This comparison was to help control for changes in the market for government-related debt, which for some hypothetical

reason may not have impacted U.S. Treasuries. The gap between the bid-ask spreads for USD SSA bonds and the control bonds was at its peak during the core conspiracy period. In other words, again, the bid-ask spreads for USD SSA bonds during the core conspiracy period were found to be too high, even after using another control variable.



536. A similar study was run by another consultant, who instead chose to compare against a larger basket of sovereign bonds. The gap between the bid-ask spreads for USD SSA bonds and the control bonds was once again at its peak during the core conspiracy period. In other words, again, the bid-ask spreads for USD SSA bonds during the core conspiracy period were found to be too high, even after using a control variable.



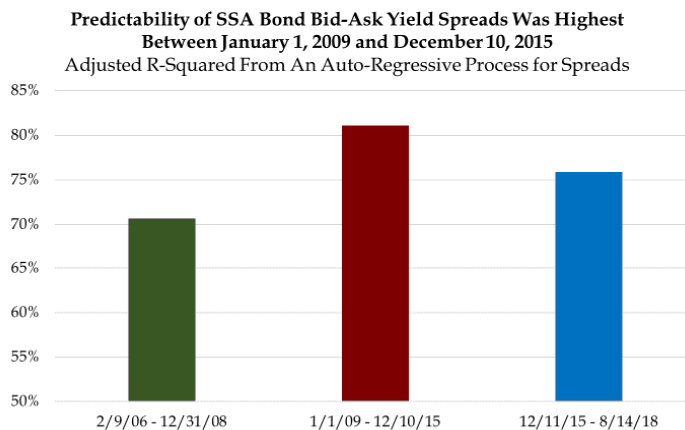
537. In sum, the market-wide data show in a variety of ways that bid-ask spreads were inflated during the core conspiracy period, as compared to pre- and post-periods. This again supports the conclusion that Defendants’ conspiracy had a broad impact and artificially widened spreads [REDACTED]

2. Bid-ask spreads were more predictable during the core period

538. A conspiracy to maintain an advantageously higher bid-ask spread on a consistent basis, no matter what was going on across the larger economic landscape, can also manifest itself in bid-ask spreads that were relatively stable over time. In fact, bid-ask spreads for the majority of studied USD SSA bonds became more predictable after December 31, 2008. The majority of the bid-ask spreads then became less predictable after December 10, 2015. In other words, bid-ask spreads for USD SSA bonds were the *most predictable* from day to day during the core conspiracy years.

539. One way to summarize is by way of the “adjusted R-squared” result from a regression model. As discussed above, this figure essentially tells how well the controls in a regression model explain the variable being studied. The higher the figure, the better the tested

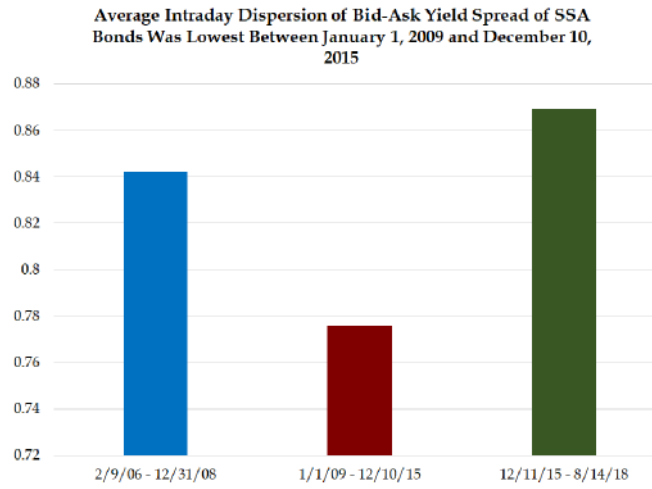
variable was at predicting the result. Here, Plaintiffs tested how well the bid-ask spread from one day on a given USD SSA bond was at predicting the bid-ask spread on that same bond the next day. As seen in the following chart, the adjusted R-squared was much higher during the core conspiracy period than it was for either the before or after periods, showing that bid-ask spreads were more predictable day-to-day during the conspiracy period than they were before or after. These differences are all statistically significant from each other.



540. Another way to see if the conspiracy made bid-ask spreads more stable—at a high level, per the previous studies—is to measure the “coefficient of variation” among all the bid-ask spreads for all bonds traded on a given day.⁷⁹ A higher average coefficient of variation for each period indicates the bid-ask spreads for the studied bonds were on average more different from each other on each day throughout the each period. A lower coefficient of variation indicates that the bid-ask spreads for the studied bonds were more clustered together on each day. Such a clustering would be consistent with a conspiracy that kept bid-ask spreads consistent (artificially high) regardless of what was happening in the larger economic landscape.

⁷⁹ A coefficient of variation is merely the standard deviation divided by the mean.

541. Again, that is just what the data show. The following chart depicts this phenomenon by taking the average of the daily coefficients of variation within each of the three periods. The middle bar, representing the core conspiracy period, is much shorter than the other two, indicating a lower coefficient of variation. In other words, bid-ask spreads were the *most clustered* for USD SSA bonds, day to day, during the core conspiracy period.



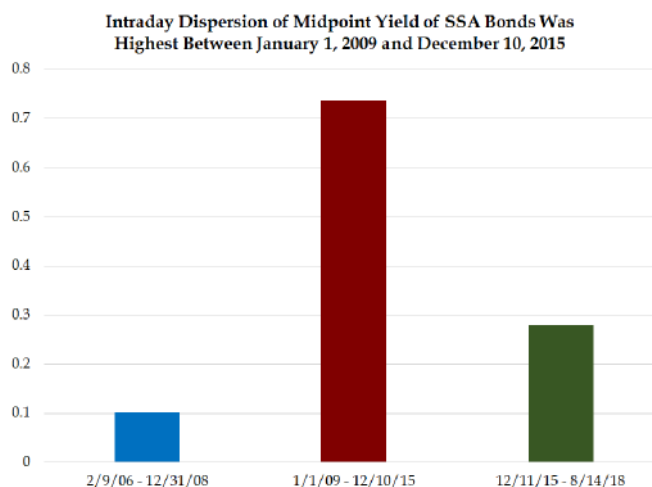
542. The same test was run, but again using U.S. Treasuries as a control variable. The gap between bid-ask spreads for USD SSA bonds and comparable U.S. Treasuries was measured each day. Then coefficients of variation were then taken of those gaps. Here, again, bid-ask spreads for USD SSA bonds were more diverse after December 10, 2015 than before, even after controlling for changes in U.S. Treasury rates, just as one would predict with the breaking of the conspiracy.

543. In sum, the data show bid-ask spreads being too consistent during the core conspiracy period. This again supports the conclusion that Defendants' conspiracy had a broad impact and artificially widened spreads [REDACTED]

3. Yields were more variable during the alleged conspiracy period

544. As discussed above, the alleged conspiracy would be expected to keep *bid-ask* spreads higher (Section IX.C.1) and more stable (Section IX.C.2) during the core conspiracy years. The same conspiracy would, however, introduce extra volatility into the actual *yields* of USD SSA bonds. This is because a conspiracy that manifested itself most strongly when Defendants were pushing yields artificially low when selling, then pushing yields artificially high when buying, would cause yields to bounce around more than they otherwise would have.

545. That is, again, what the data show. For the majority of the USD SSA bonds, the coefficient of variation for their yields (measuring their variability over time) went up (yields became less stable) after December 31, 2008. And for the majority of the USD SSA bonds, their coefficient of variation for their yields went back down (yields became more stable) after December 10, 2015, showing them less volatile since then. The following chart depicts this phenomenon by taking the average coefficients of variation for all yields for the three periods. The middle bar, representing the core conspiracy period, is much higher than the other two. In other words, yields were more volatile over time for each USD SSA bond, day to day, during the core conspiracy period.



546. The same test was run, but again using U.S. Treasuries as a control variable. The gap between yields for USD SSA bonds and comparable U.S. Treasuries was measured each day. Then coefficients of variation were then taken of those gaps. Here, again, yields for USD SSA bonds were found to have gotten less diverse after December 10, 2015, even after controlling for changes in U.S. Treasury rates, just as one would predict with the breaking of the conspiracy.

547. The same test was run, again using a control, but instead here using yields from sovereign bonds issued by Germany, France, and the United Kingdom as control variables. The gap between yields for USD SSA bonds and those sovereign bonds was measured each day. Then coefficients of variation were then taken of those gaps. Here, again, yields for USD SSA bonds were found to have gotten more diverse after December 31, 2008, and then less diverse after December 10, 2015, even after controlling for changes in sovereign bonds, just as one would predict with the breaking of the conspiracy.

548. In sum, the market-wide data show yields being too variable during the core conspiracy period. This yet again supports the conclusion that Defendants' conspiracy had a broad impact and artificially widened spreads [REDACTED]

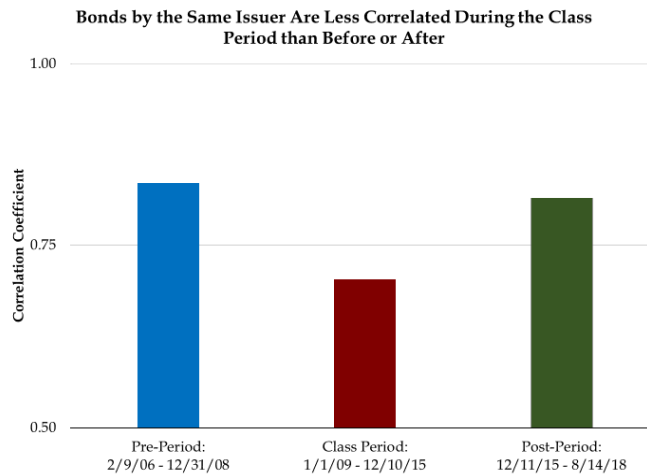
4. *The correlation between bonds from the same issuer changed as well*

549. Given they share similar risk and other features, two different bonds from the same issuer would be expected, all else equal, to move in similar ways in response to various stimuli. What the market learns about one bond is likely to shade the market's view of the other bond issued by the same issuer.

550. However, if the conspiracy put artificial pressure on a particular bond—because that was the particular bond the conspiring Defendant was interested in buying or selling on that

particular day—then the relationship between that bond and others from the same issuer may be affected. The *artificial* pricing pressure may not carry into the pricing of other, related bonds as quickly or fully as other factors, such as a change in the yields on comparable U.S. Treasuries.

551. As seen in the chart below, as one would expect, there is a very high level of yield correlation across related bonds. This is true even during the core conspiracy period. But the correlation is nonetheless still noticeably *less* correlated during the core conspiracy period than they were before or after. Thus, again, the data show yields acting in a way consistent with the operation of a conspiracy impacting competition in the market.



EQUITABLE TOLLING BECAUSE OF DEFENDANTS' CONCEALMENT

552. During the Class Period, Defendants actively, fraudulently, and effectively concealed their conspiracy from Plaintiffs and members of the Class. None of the facts or information available to Plaintiffs, if investigated with reasonable diligence, could or would have led to the discovery of the conspiracy alleged in this Complaint. Plaintiffs and members of the Class did not know of, and could not have known of, Defendants' conspiracy at least until the *Bloomberg* article was published on December 9, 2015.

553. By its very nature, the unlawful conspiracy in which Defendants engaged was self-concealing. Defendants conspired to artificially manipulate the SSA bond market to the

benefit of Defendants and to the detriment of Plaintiffs and members of the Class. SSA bond trades occur primarily in private, OTC transactions, and Defendants' trades and trading strategies are not public information. Reasonable due diligence could not have uncovered Defendants' conspiracy because the non-exchange-based, closed, and private nature of the trades helped to conceal Defendants' conduct. Indeed, throughout the Class Period, Plaintiffs and members of the Class regularly monitored news reports concerning the financial industry and the SSA market. Plaintiffs and members of the Class undertook such activity in order to try to buy and sell SSA bonds at good prices.

554. For such a conspiracy to work, it must remain secret—a fact which the cartel members all understood. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

555. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Even now, the full contours of Defendants' conspiracy are not public.

556. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

557. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

558. [REDACTED]

[REDACTED]

[REDACTED]

559.

[REDACTED]

560. Because of Defendants' concealment, any applicable statute of limitations affecting or limiting the rights of action by Plaintiffs or members of the Class have been tolled during the period of concealment.

CLASS ACTION ALLEGATIONS

561. Plaintiffs bring this action on behalf of themselves and, under Federal Rule of Civil Procedure 23(a) and (b)(3), as the representatives of a Class defined as follows:

All persons or entities who, from January 1, 2009 to December 31, 2015, directly entered into U.S. dollar-denominated SSA bond transactions with Defendants, or their respective subsidiaries or affiliates, in the United States or its territories or

otherwise involving U.S. trade or commerce. Excluded from the Class are Defendants, their co-conspirators identified herein, and their officers, directors, management, employees, current subsidiaries or affiliates, and all federal governmental entities.

562. **Numerosity.** Members of the Class are so numerous that joinder is impracticable. Plaintiffs do not know the exact size of the Class, but believe that there are at least several hundred and likely thousands of Class members geographically dispersed throughout the United States.

563. **Typicality.** Plaintiffs' claims are typical of the claims of the members of the Class. Plaintiffs and all members of the Class were damaged by the same wrongful conduct of Defendants. Specifically, Defendants' wrongdoing caused Plaintiffs and members of the Class to pay inflated bond prices when they were buying and to receive suppressed bond prices when they were selling.

564. Plaintiffs will fairly and adequately protect and represent the interests of the Class. The interests of Plaintiffs are coincident with, and not antagonistic to, those of the Class. Accordingly, by proving its own claims, Plaintiffs will prove other Class members' claims as well.

565. **Adequacy of Representation.** Plaintiffs are represented by counsel who are experienced and competent in the prosecution of class action antitrust litigation. Plaintiffs and its counsel have the necessary financial resources to adequately and vigorously litigate this class action. Plaintiffs can and will fairly and adequately represent the interests of the Class and have no interests that are adverse to, conflict with, or are antagonistic to the interests of the Class.

566. **Commonality.** There are questions of law and fact common to the Class, which questions relate to the existence of the conspiracy alleged, and the type and common pattern of injury sustained as a result thereof, including, but not limited to:

- a. whether Defendants and their co-conspirators engaged in an agreement, combination, or conspiracy to fix, raise, elevate, maintain, or stabilize USD SSA bond prices in interstate commerce in the United States;
- b. the identity of the participants of the conspiracy;
- c. the duration of the conspiracy alleged herein and the acts performed by Defendants and their co-conspirators in furtherance thereof;
- d. whether the alleged conspiracy violated Section 1 of the Sherman Act;
- e. whether the conduct of Defendants and their co-conspirators, as alleged, caused injury to the business and property of Plaintiffs and other members of the Class;
- f. whether Defendants fraudulently concealed the conspiracy from Plaintiffs and the Class;
- g. the appropriate measure of damages sustained by Plaintiffs and other members of the Class;
- h. whether Plaintiffs and other Class Members are entitled to injunctive relief; and
- i. the appropriate injunction needed to restore competition.

567. ***Predominance.*** Questions of law and fact common to the members of the Class predominate over questions that may affect only individual Class members because Defendants have acted on grounds generally applicable to the entire Class, thereby making a common methodology for determining class damages as a whole appropriate. Such generally applicable conduct is inherent in Defendants' wrongful conduct.

568. ***Superiority.*** Class action treatment is a superior method for the fair and efficient adjudication of the controversy. Such treatment will permit a large number of similarly situated,

geographically dispersed persons or entities to prosecute their common claims in a single forum simultaneously, efficiently, and without the unnecessary duplication of evidence, effort, or expense that numerous individual actions would engender. The benefits of proceeding through the class mechanism, including providing injured persons or entities a method for obtaining redress on claims that could not practicably be pursued individually, substantially outweighs potential difficulties in management of this class action. The Class has a high degree of cohesion, and prosecution of the action through representatives would be unobjectionable.

569. Plaintiffs know of no special difficulty to be encountered in the maintenance of this action that would preclude its maintenance as a class action.

CAUSES OF ACTION

CLAIM ONE

VIOLATION OF 15 U.S.C. § 1 AGREEMENT RESTRAINING TRADE

570. Plaintiffs hereby incorporate each preceding and succeeding paragraph as though fully set forth herein.

571. Defendants, and their co-conspirators, entered into and engaged in a conspiracy in unreasonable restraint of trade in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1. The conspiracy consisted of a continuing agreement, understanding, or concerted action between and among Defendants and their co-conspirators in furtherance of which Defendants fixed, maintained, or made artificial prices on SSA bonds.

572. Defendants' unlawful conduct was through mutual understandings, combinations, or agreements by, between, and among Defendants and other unnamed co-conspirators. Defendants' conspiracy is a *per se* violation of the Sherman Act and is, in any event, an unreasonable and unlawful restraint of trade.

573. There is no legitimate business justification for, or procompetitive benefits caused by, Defendants' unreasonable restraint of trade. Any ostensible procompetitive benefit was pretextual or could have been achieved by less restrictive means.

574. Defendants' conspiracy, and the resulting impact on the prices of SSA bonds occurred in and affected interstate commerce and commerce in and between the Territories of the United States.

575. As a direct, intended, foreseeable, and proximate result of Defendants' conspiracy and overt acts taken in furtherance thereof, Plaintiffs and each member of the Class have suffered injury to their business or property. Plaintiffs and each Class member's damages are directly attributable to Defendants' conduct, which resulted in all Class members transacting in manipulated prices on every USD SSA bond they purchased or sold during the Class Period.

576. Plaintiffs' and the Class's injuries are of the type the antitrust laws were designed to prevent, and flow from that which makes Defendants' conduct unlawful.

577. Plaintiffs and the Class are entitled to treble damages, attorneys' fees, reasonable expenses, and cost of suit for the violations of the Sherman Act.

PRAYER FOR RELIEF

578. WHEREFORE, Plaintiffs, on behalf of themselves and the proposed Class of similarly situated entities, respectfully request that the Court:

a. Determine that this action may be maintained as a class action pursuant to Federal Rule of Civil Procedure 23(a) and (b)(3), direct that reasonable notice of this action, as provided by Federal Rule of Civil Procedure 23(c)(2), be given to the Class, designate Plaintiffs as Class representatives, and appoint Plaintiffs' counsel as counsel for the Class;

b. Adjudge and decree that Defendants' unlawful conduct alleged herein violates Section 1 of the Sherman Act;

- c. Permanently enjoin and restrain Defendants from continuing and maintaining the conspiracy alleged in the Complaint;
- d. Find Defendants jointly and severally liable for the damages incurred by Plaintiffs and the Class;
- e. Award Plaintiffs and the Class damages against Defendants for their violations of federal antitrust laws, in an amount to be trebled in accordance with such laws, plus interest;
- f. Award Plaintiffs and the Class their costs of suit, including reasonable attorneys' fees and expenses, as provided by law;
- g. Award Plaintiffs and the Class all available pre-judgment and post-judgment interest, to the fullest extent available under law or equity, from the date of service of the initial Complaint in this action; and
- h. Order such other, further, and general relief as it may deem just and proper.

JURY DEMAND

Pursuant to Federal Rule of Civil Procedure 38, Plaintiffs, on behalf of themselves and the proposed Class, demand a trial by jury on all issues so triable.

DATED: New York, New York
November 6, 2018

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